

L50S(LVDS)

TFT LCD Color Monitor

TECHNICAL SERVICE MANUAL



Safety Precaution

WARNING

Service should not be attempted by anyone unfamiliar with the necessary precautions on this monitor.

The followings are the necessary precautions to be observed before servicing.

1. When managing this monitor, cover with shield plate to avoid to scratch on LCD surface.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor capacitor network etc.
3. Before returning the monitor to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as signal connectors, terminals, screw heads, metal overlays, control shafts etc, to be sure the monitor is safe to operate without danger of electrical shock.

General Information

1. Description

This 15" LCD color display monitor is operated in R, G, B drive mode input.

2. Operating instructions

2-1. Front

Power Switch , Menu, Select, Down, Up, DPMS (Power) LED

2-2. Rear

Input connector (AC & Signal Cable)

2-3. OSD Controls

H/V Position, Clock Phase, Brightness, Contrast, Recall, Color Control, Language, Auto Adjust, Miscellaneous, Auto color, Audio control

3. Electrical Characteristic

3-1. Power Supply

AC/DC - Input Voltage : 90V~264V
Input Current : 1.0 A Max
Input Frequency : 50 ~ 60Hz
- Output Voltage 12V/5V
Output Current 2A/1.5A

3-2. Video Input Signal

Level : 0.7 Vp-p analog signal(at 75 ohm termination to ground)
Polarity : Positive

3-3. Horizontal Synchronization Signal

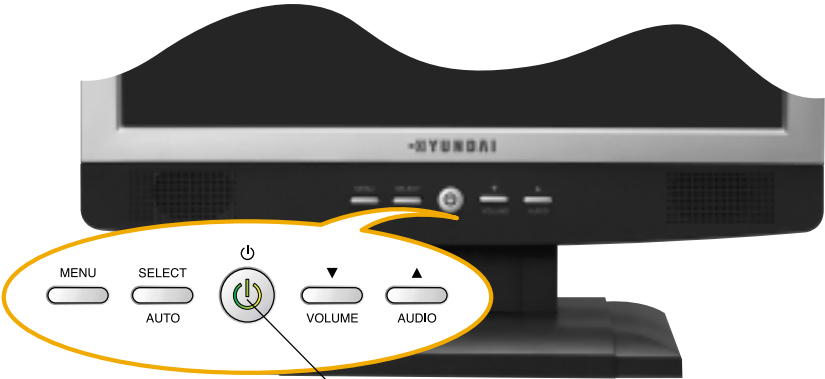
Level : TTL High : 2.4V min
Low : 0.4V max
Polarity : - or +
Frequency : 31kHz ~ 60kHz

3-4. Vertical Synchronization Signal

Level : TTL High : 2.4V min
Low : 0.4V max
Polarity : - or +
Frequency : 56Hz ~ 75Hz

Control Description

Front View



Power Switch / LED Indecator

Support Modes

NO	Resolution	H Frequency (kHz)	V Frequency (Hz)	H Polarity	V Polarity	Dot Clock (MHz)
1	720 x 400	31.5	70.0	0	1	28.322
2	640 x 480	31.5	59.9	0	0	25.175
3	640 x 480	37.9	72.8	0	0	31.500
4	800 x 600	37.9	60.3	1	1	40.000
5	800 x 600	46.9	75.0	1	1	49.500
6	1024 x 768	48.4	60.0	0	0	65.000
7	1024 x 768	56.5	70.1	0	0	75.000
8	1024 x 768	60.0	75.0	1	1	78.750

Video Input Signal

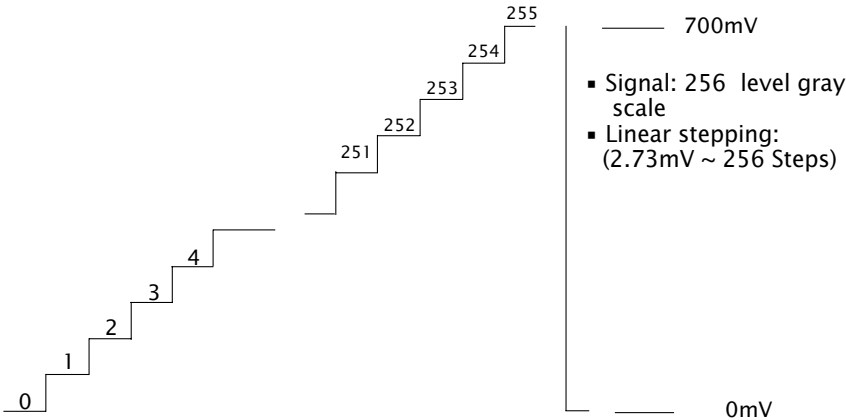
Recommended signal are shown below

■Video Signal

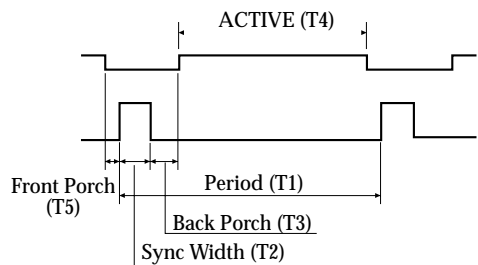
Video level : 0 to 700mV
Polarity : positive
Video Input : RGB separated
Analog level
Sync input : H-Sync(TTL level)
V-Sync (TTL level)

■Waveform

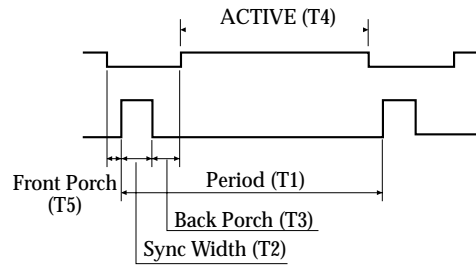
Video input(R.G.B)



• H-Sync



• V-Sync



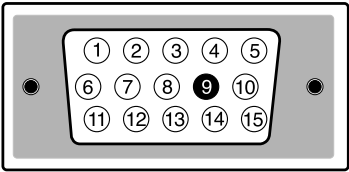
Video Input Terminal

A 15 Pin D-sub connector is used as the input signal connector
Pin and input signals are shown in the table below.

Pin Description

PIN NO. \ SIGNAL	SEPARATE SYNC/ DDC 1/2B
1	RED
2	GREEN
3	BLUE
4	GND
5	RETURN
6	RED GROUND
7	GREEN GROUND
8	BLUE GROUND
9	N.C
10	LOGIC GROUND
11	GROUND
12	SDA
13	H-SYNC(TTL)
14	V-SYNC(VCLK)
15	SCL

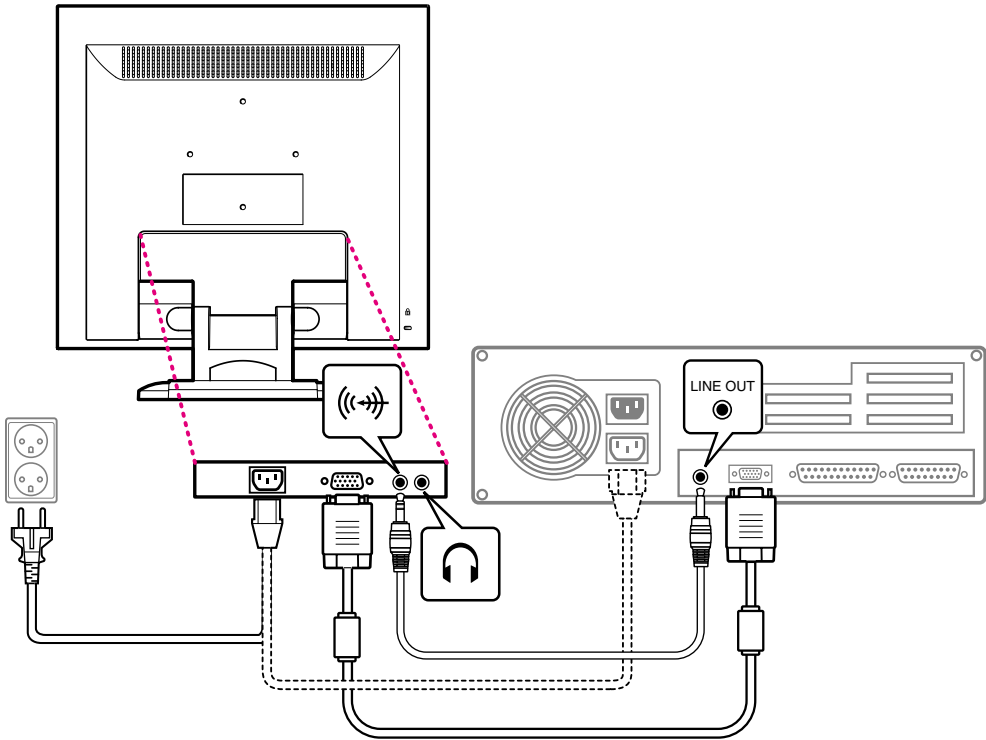
D-Sub miniature connector



Connecting with External Equipment

Cautions

Be sure to turn off the power of your computer before connecting the monitor.



Theory of Operation

1. DC/AC INVERTER

Input voltage : DC 12V
 Input current : 2.0A(Max)
 Output current : 6.5mA_{rms}(TYP)
 Frequency(switching) : 47KHz(Typ)
 Output power : 17W(TYP)
 On/off control voltage : 5.0V

2. AC/DC ADATOR

This display device shall maintain the specified performances in the range described below

Frequency : 50/60Hz
 Voltage : 90 - 264Vac RMS

The following consumption requirements shall be met:

Power Consumption : 30W(typ)

Current consumption : < 1.0 A_{ac} RMS

Output Specification:

output1 : 12V/2.0A

output2 : 5V/1.5A

3. Audio System

This monitor has an audio system including two micro loudspeakers.

Each of two micro loudspeakers has a 2W(Max) output power.

This system also supports a headphone(earphone) output.

- Auto Signal Input : < 600mV_{p-p}(Max.)

- Auto Amplifiers

2W+2W Amplifier with DC Volume Control (for two micro loudspeakers)

RL=8 Ω @THD=10% V_{cc}=14V (min. 10V, max. 18V)

Dual-Audio Power Amplifier (for a headphone output)

RL=32 Ω @THD=10% V_{cc}=4.5V (min. 1.8V, max. 15V)

- Speaker

Micro Loudspeaker Spec.

Normal impedance 8 Ω +/- 15% at 1.0V 1.5KHz

Resonance Freq. 550Hz +/- 110Hz at 1.0V

Freq. Range fo ~ 20KHz

Power Rating Normal 1.0W/Peak 2.0W

4. DPMS MODE

Status	Signal			Power Consumption	Recovery Time	LED Indicator
	H-Sync	V-Sync	Video			
on	Pulse	Pulse	Active	30W(typ)	-	Green
off	No Pulse	No Pulse	Blank	≤ 1W (TYP) 230V AC	Within 3 Sec	Orange

On Screen Controls & LED Indicator

The menu for screen setting adjustment is located in the OSD and can be viewed in one of five languages OSD feature and main functions are as follows:



The OSD adjustments available to you are listed below.

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BRIGHTNESS

Adjust the brightness of the screen.



CONTRAST

Adjust the contrast of the screen.



COLOR CONTROL

Color temperature affects the tint of the image. With lower color temperatures the image turns reddish and with higher temperatures bluish.

There are three color settings available: Mode 1(9300K), Mode 2(6500K) or USER. With the USER setting you can set individual values for red, green and blue.



POSITION

H POSITION

Adjusts the horizontal position of the entire screen image.

V POSITION

Adjusts the vertical position of the entire screen image.

Adjusts the vertical position of the entire screen image.



CLOCK PHASE

PHASE

Adjust the noise of the screen image.

CLOCK

Adjust the horizontal size of the entire screen image.



MISCELLANEOUS

RECALL

Recall the saved color data.

OSD TIMER

You can set the displayed time of OSD Menu window on the screen by using this adjustment.

OSD POSITION

Adjust the OSD menu's horizontal or vertical position on the screen.



AUTO COLOR

Optimum color setting is auto programmed for user's convenience.



LANGUAGE

You can select the language in which adjustment menus are displayed.

The following languages are available : English, French, German, Italian, Spanish, Swedish, Finnish, Danish, Portuguese, Dutch and Japanese or chinese.



AUDIO

VOLUME

Adjust the audio volume level.

AUDIO

This menu is used to choose audio on or off.



AUTO ADJUST

You can adjust the shape of screen automatically at the full screen pattern.

Getting Fine Picture

- Step 1.** At first Display, a full screen, such as, Window's background or "H" character should be achieved by using Editor (ex: Notepad. exe)
- Step 2.** Adjust the screen to the center of the Display(LCD), by using the top and bottom display controls. (i.e.Using V-Position Adjust menu)



- Step 3.** Adjust the screen to the center of the Display(LCD), by using the right and left display controls. (i.e.Using Clock and H-Position adjust menu)



- Step 4.** Adjust the Clock-phase until the "H" Character displays clear.



- Step 5.** Using the Contrast, Brightness, and Color Control menu, set the color to your preference.
- Step 6.** When you finish the adjustment, you can save your settings by pressing on the menu until the OSD screen has disappeared.

Factory Setting & EEPROM Initialization Method

Factory Setting Method

- Connect the signal cable and power cable to the LCD monitor.
- Press Power switch with pressed MENU key.(Menu key + Power key).
- Then, a User can change the factory setting value in OSD menu.
- Save changed value and Turn off the power s/w.
- Turn on the power, adjust the screen.

Specification

LCD Module	SIZE	15" Viewable diagonal
	Dot Pitch	0.297mm
	Brightness	170 cd/m ² (MIN), 250 cd/m ² (TYP)
	Response Time	25m- sec (Typ)
Input	Signal	R.G.B Analog
	Connector	15 pin D-SUB Connector
SYNC	H-Freq	31.0kHz ~ 60.0kHz
	V-Freq	56.0Hz ~ 75Hz
Display	Area	304(H)X228(V)mm
	Color	16.2M Colors
Resolution		1024 X 768 @ 75Hz
Video Bandwidth		80MHz
User Control & OSD Control		Contrast,Brightness,H-V Position, Clock Phase, Color Control, Language, Auto Adjust, Miscellaneous,s Auto Color, Audio Control
Power Management		VESA DPMS Standard
Plug & Play		VESA DDC 1/2B
Safety & Regulation	EMC	FCC CLASS B , CE , VCCI
	Safety	cULus, CE, TUV-GS, SEMKO
	Ergonomi	TCO'99
Temperature	Operating	5 to 35 °C
	Storage	- 5 to 45 °C
Humidity	Operating	30 to 80%(Non-condensing)
	Storage	5 to 90%(Non-condensing)
Weight	unpacked	2.6Kg
	packed	3.7Kg
Dimension(WXHXD mm)		345.6X362X185mm

* Specification is subject to change without notice for performance improvement.

Critical Parts Specification

1. LCD Module

LTM150XH-L01(M150X3-L01) is a a-si TFT active matrix color liquid crystal comprising amorphous silicon TFT attached to each signal electrode, a driving circuit and a backlight.

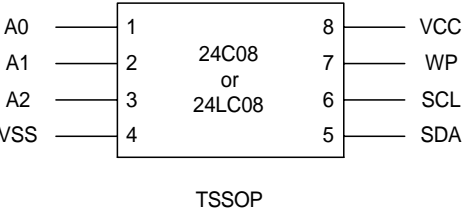
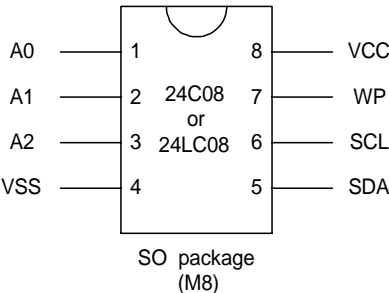
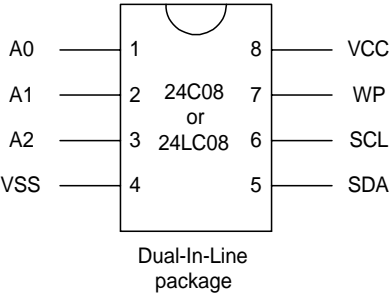
LTM150XH-L01(M150X3-L01) has a built-in backlight display area contains 1280X1024 pixels and can display full color (16.2M colors)

Display area	304(H)X228(V)mm
Drive system	a-si TFT
Display color	16.2M Colors
Number of Pixel	1024X768
Pixel arrangement	RGB vertical strip
Pixel pitch	0.297(H)X0.297(V)mm
Contrast Ratio*	300:1
Viewing angle*	
Horizontal:	70 degree, 70 degree
Vertical:	55 degree, 60 degree
Response time*	25ms(Typ)
Luminance*	250cd/m ² (Typ)
Signal system	Digital RGB signals, Sync signals(H, V-Sync), Dot clock(DCLK) , DE(Data Enable)
Supply voltage	3.3V
Backlight	Edge light type: Four colt cathode fluorescent lamps
power consumption	11W(TYP)

*: only LTM150XH-L01

Vendor	Type
SamSung	LTM150XH-L01
Chimei	M150X3-L01

24LC08



Pin Name

A0, A1	N.C.
A2	Device Address inputs
Vss	Ground
SDA	Data I/O
SCL	Clock input
WP	Write Protect
Vcc	+ 5 V or + 3 V

3.0 ABSOLUTE MAXIMUM RATINGS

Storage Temperature.....-65°C to + 125°C
Voltage with Respect to Ground.....-0.3 to + 6.5 V

NOTE: These are STRESS rating only. Appropriate conditions for operating these devices given elsewhere may permanently damage the part. Prolonged exposure to maximum ratings may affect device reliability.

4.0 OPERATING CONDITIONS

Temperature under bias: MTV24C08/24LC08.....0°C to + 70°C
MTV24C08/24LC08-I.....-40°C to + 85°C

5.0 ELECTRICAL CHARACTERISTICS

DC ELECTRICAL CHARACTERISTICS

(V_{CC} = 5V +/- 10% ,MTV24C08/24LC08° V_{CC} = 3V +/- 10% ,24LC08)

Symbol	Parameter	Conditions	MTV24C08/ 24LC08		24LC08		Units
			Min	Max	Min	Max	
I _{CC1}	Operating Current (Program)	SCL = 100KHZ CMOS Input Levels	—	10	—	8	mA
I _{CC2}	Operating Current (Read)	SCL = 100KHZ CMOS Input Levels	—	2	—	2	mA
I _{SB}	Standby Current	SCL = SDA = 0 V	—	10	—	10	μA
I _{IL}	Input Leakage	V _{IN} = 0 V to V _{CC}	-1	+1	-1	+1	μA
I _{OL}	Output Leakage	V _{OUT} = 0 V to V _{CC}	-1	+1	-1	+1	μA
V _{IL}	Input Low Voltage		-0.1	0.8	-0.1	0.15 V _{CC}	V
V _{IH}	Input High Voltage		2	V _{CC} + 0.2	0.8V _{CC}	V _{CC} + 0.2	V
V _{OL1}	Output Low Voltage	I _{OL} = 2.1 mA TTL	—	0.4	—	0.4	V
V _{OH1}	Output High Voltage	I _{OH} = -400μA TTL	2.4	—	2.4	—	V
V _{OL2}	Output Low Voltage	I _{OL} = 10μA CMOS	—	0.2	—	0.2	V
V _{OH2}	Output High Voltage	I _{OH} = -10μA CMOS	V _{CC} - 0.2	—	V _{CC} - 0.2	—	V
V _{LK}	V _{CC} Lockout Voltage	Programming Command Can Be Executed	Default	—	Default	—	V

6.0 SWITCHING CHACTERISTICS (Under Operating Conditions)

AC ELECTRICAL CHARACTERISTICS

(V_{CC} = 5V +/- 10% , MTV24C08° V_{CC} = 3V +/- 10% ,24LC08)

(V_{CC} = 5V +/- 10% , MTV24C08 Fast Mode)

Parameter	Symbol	MTV24C08/ 24LC08		MTV24C08 (Fast Mode)		Units
		Min	Max	Min	Max	
Clock frequency	F _{scl}	0	100	—	400	kHz
Clock high time	T _{high}	4000	—	600	—	ns
Clock low time	T _{low}	4700	—	1200	—	ns
SDA and SCL rise time	T _r	—	1000	—	300	ns
SDA and SCL fall time	T _f	—	300	—	300	ns
START condition hold time	T _{hd:Sta}	4000	—	600	—	ns
START condition setup time	T _{su:Sta}	4700	—	600	—	ns
Data input hold time	T _{hd:Dat}	0	—	0	—	ns
Data input setup time	T _{su:Dat}	250	—	100	—	ns
STOP condition setup time	T _{su:Sto}	4000	—	600	—	ns
Output valid from clock	T _{aa}	300	3500	100	900	ns
Bus free time	T _{buf}	4700	—	1200	—	ns
Data out hold time	T _{dh}	300	—	50	—	ns
Input filter spike suppression (SDA and SCL pins)	T _{sp}	—	100	—	50	ns
Write cycle time	T _{wr}	—	10	—	10	ms

CAPACITANCE TA= 25°C , f=250KHZ

Symbol	Parameter	Max	Units
C_o	Output capacitance	5	pF
C_{in}	Input capacitance	5	pF

A.C. Conditions of Test

Input Pulse Levels	Vcc x 0.1 to Vcc x 0.9
Input Rise and Fall times	10 ns
Input and Output Timing level	Vcc x 0.5
Output Load	1 TTL Gate and CL = 100pf

RC1117-3.3

1A Adjustable/Fixed Low Dropout Linear Regulator

Features

- Low dropout voltage
- Load regulation: 0.05% typical
- Trimmed current limit
- On-chip thermal limiting
- Standard SOT-223, TO-263, and TO-252 packages
- Three-terminal adjustable or fixed 2.5V, 2.85V, 3.3V, 5V

Applications

- Active SCSI terminators
- High efficiency linear regulators
- Post regulators for switching supplies
- Battery chargers
- 5V to 3.3V linear regulators
- Motherboard clock supplies

Description

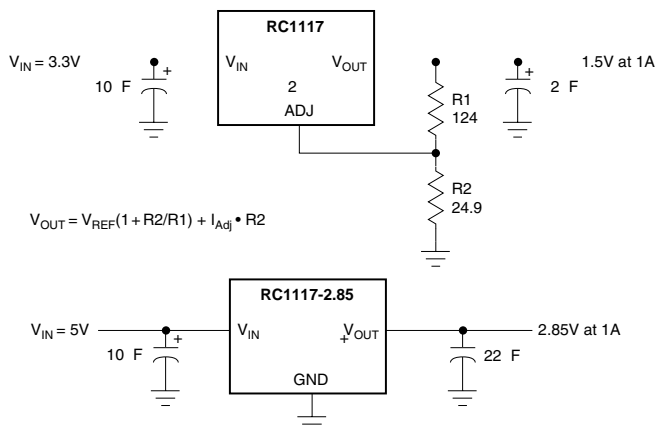
The RC1117 and RC1117-2.5, -2.85, -3.3 and -5 are low dropout three-terminal regulators with 1A output current capability. These devices have been optimized for low voltage where transient response and minimum input voltage are critical. The 2.85V version is designed specifically to be used in Active Terminators for SCSI bus.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limiting provides protection against any combination of overload and ambient temperatures that would create excessive junction temperatures.

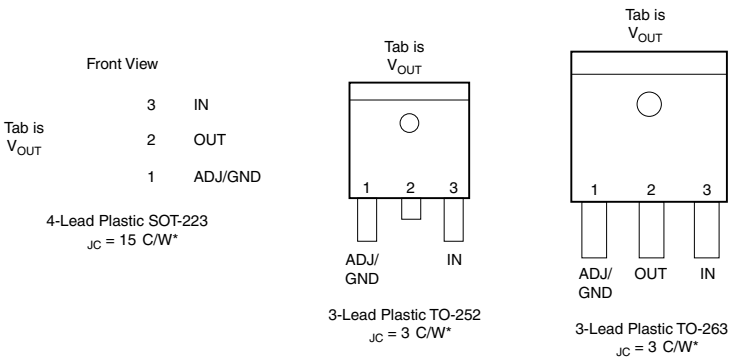
Unlike PNP type regulators where up to 10% of the output current is wasted as quiescent current, the quiescent current of the RC1117 flows into the load, increasing efficiency.

The RC1117 series regulators are available in the industry-standard SOT-223, TO-263 (D2PAK), and TO-252 (DPAK) power packages.

Typical Applications



Pin Assignments



*With package soldered to 0.5 square inch copper area over backside ground plane or internal power plane., θ_{JA} can vary from 30°C/W to more than 50°C/W. Other mounting techniques may provide better thermal resistance than 30°C/W.

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
V_{IN}		7.5	V
Operating Junction Temperature Range	0	125	C
Storage Temperature Range	-65	150	C
Lead Temperature (Soldering, 10 sec.)		300	C

Electrical Characteristics

Operating Conditions: $V_{IN} = 7V$, $T_J = 25^\circ C$ unless otherwise specified.

The Δ denotes specifications which apply over the specified operating temperature range.

Parameter	Conditions	Min.	Typ.	Max.	Units
Reference Voltage, V_{REF} ³	1.5V ($V_{IN} - V_{OUT}$) 5.75V, 10mA I_{OUT} 1A	1.225 (-2%)	1.250	1.275 (+2%)	V
Output Voltage	10mA I_{OUT} 1A RC1117-2.5, 4V V_{IN} 7V RC1117-2.85, 4.35V V_{IN} 7V RC1117-3.3, 4.8V V_{IN} 7V RC1117-5, 6.5V V_{IN} 7V	2.450 2.793 3.234 4.900	2.5 2.85 3.3 5.0	2.550 2.907 3.366 5.100	V V V V
Line Regulation ^{1,2}	($V_{OUT} + 1.5V$) V_{IN} 7V, $I_{OUT} = 10mA$		0.005	0.2	%
Load Regulation ^{1,2}	($V_{IN} - V_{OUT}$) = 2V, 10mA I_{OUT} 1A		0.05	0.5	%
Dropout Voltage	$V_{REF} = 1\%$, $I_{OUT} = 1A$		1.100	1.200	V
Current Limit	($V_{IN} - V_{OUT}$) = 2V	1.1	1.5		A
Adjust Pin Current, I_{Adj} ³			35	120	A
Adjust Pin Current Change ³	1.5V ($V_{IN} - V_{OUT}$) 5.75, 10mA I_{OUT} 1A		0.2	5	A
Minimum Load Current	1.5V ($V_{IN} - V_{OUT}$) 5.75	10			mA
Quiescent Current	$V_{IN} = V_{OUT} + 1.25V$		4	13	mA
Ripple Rejection	$f = 120Hz$, $C_{OUT} = 22 \mu F$ Tantalum, ($V_{IN} - V_{OUT}$) = 3V, $I_{OUT} = 1A$	60	72		dB
Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.004	0.02	%/W
Temperature Stability			0.5		%
Long-Term Stability	$T_A = 125^\circ C$, 1000hrs.		0.03	1.0	%
RMS Output Noise (% of V_{OUT})	$T_A = 25^\circ C$, 10Hz f 10kHz		0.003		%
Thermal Resistance, Junction to Case	SOT-223		15		C/W
	TO-252, TO-263		3		C/W
Thermal Shutdown	Junction Temperature		155		C
Thermal Shutdown Hysteresis			10		C

Notes:

1. See thermal regulation specifications for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
2. Line and load regulation are guaranteed up to the maximum power dissipation (18W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/output voltage range.
3. RC1117 only.

RC1117-2.5

1A Adjustable/Fixed Low Dropout Linear Regulator

Features

- Low dropout voltage
- Load regulation: 0.05% typical
- Trimmed current limit
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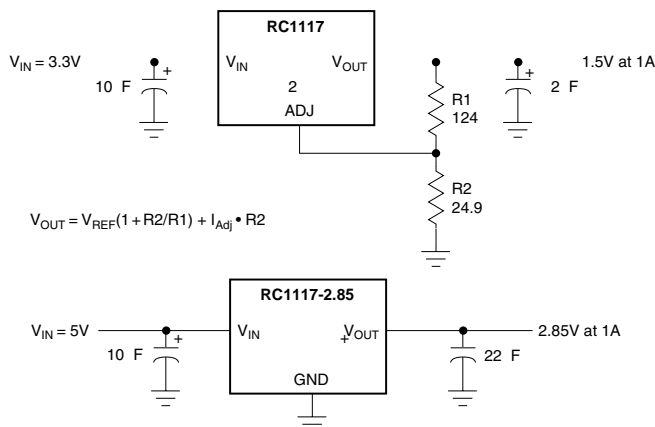
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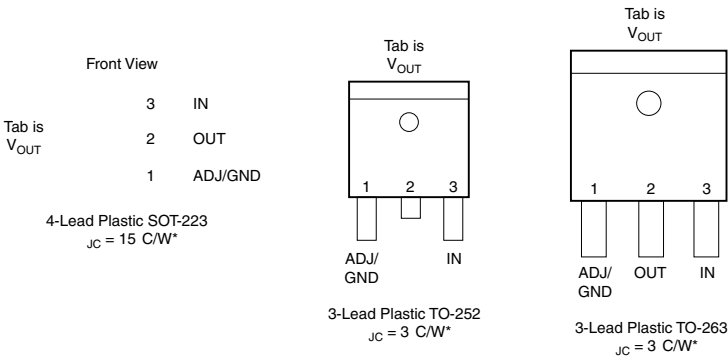
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Operating Conditions: $V_{IN} = 7V$, $T_J = 25^\circ C$ unless otherwise specified.

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Parameter	Conditions	Min.	Typ.	Max.	Units
Reference Voltage, V_{REF} ³	1.5V ($V_{IN} - V_{OUT}$) 5.75V, 10mA I_{OUT} 1A	1.225 (-2%)	1.250	1.275 (+2%)	V
Output Voltage	10mA I_{OUT} 1A				
	RC1117-2.5, 4V V_{IN} 7V	2.450	2.5	2.550	V
	RC1117-2.85, 4.35V V_{IN} 7V	2.793	2.85	2.907	V
	RC1117-3.3, 4.8V V_{IN} 7V	3.234	3.3	3.366	V
	RC1117-5, 6.5V V_{IN} 7V	4.900	5.0	5.100	V
Line Regulation ^{1,2}	($V_{OUT} + 1.5V$) V_{IN} 7V, $I_{OUT} = 10mA$		0.005	0.2	%
Load Regulation ^{1,2}	($V_{IN} - V_{OUT}$) = 2V, 10mA I_{OUT} 1A		0.05	0.5	%
Dropout Voltage	$V_{REF} = 1\%$, $I_{OUT} = 1A$		1.100	1.200	V
Current Limit	($V_{IN} - V_{OUT}$) = 2V	1.1	1.5		A
Adjust Pin Current, I_{Adj} ³			35	120	A
Adjust Pin Current Change ³	1.5V ($V_{IN} - V_{OUT}$) 5.75, 10mA I_{OUT} 1A		0.2	5	A
Minimum Load Current	1.5V ($V_{IN} - V_{OUT}$) 5.75	10			mA
Quiescent Current	$V_{IN} = V_{OUT} + 1.25V$		4	13	mA
Ripple Rejection	$f = 120Hz$, $C_{OUT} = 22 \mu F$ Tantalum, ($V_{IN} - V_{OUT}$) = 3V, $I_{OUT} = 1A$	60	72		dB
Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.004	0.02	%/W
Temperature Stability			0.5		%
Long-Term Stability	$T_A = 125^\circ C$, 1000hrs.		0.03	1.0	%
RMS Output Noise (% of V_{OUT})	$T_A = 25^\circ C$, 10Hz f 10kHz		0.003		%
Thermal Resistance, Junction to Case	SOT-223		15		C/W
	TO-252, TO-263		3		C/W
Thermal Shutdown	Junction Temperature		155		C
Thermal Shutdown Hysteresis			10		C

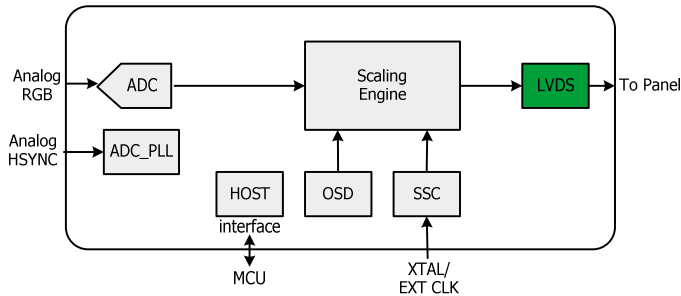
Notes:

1. See thermal regulation specifications for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
2. Line and load regulation are guaranteed up to the maximum power dissipation (18W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/output voltage range.
3. RC1117 only.

MST9011

GENERAL DESCRIPTION

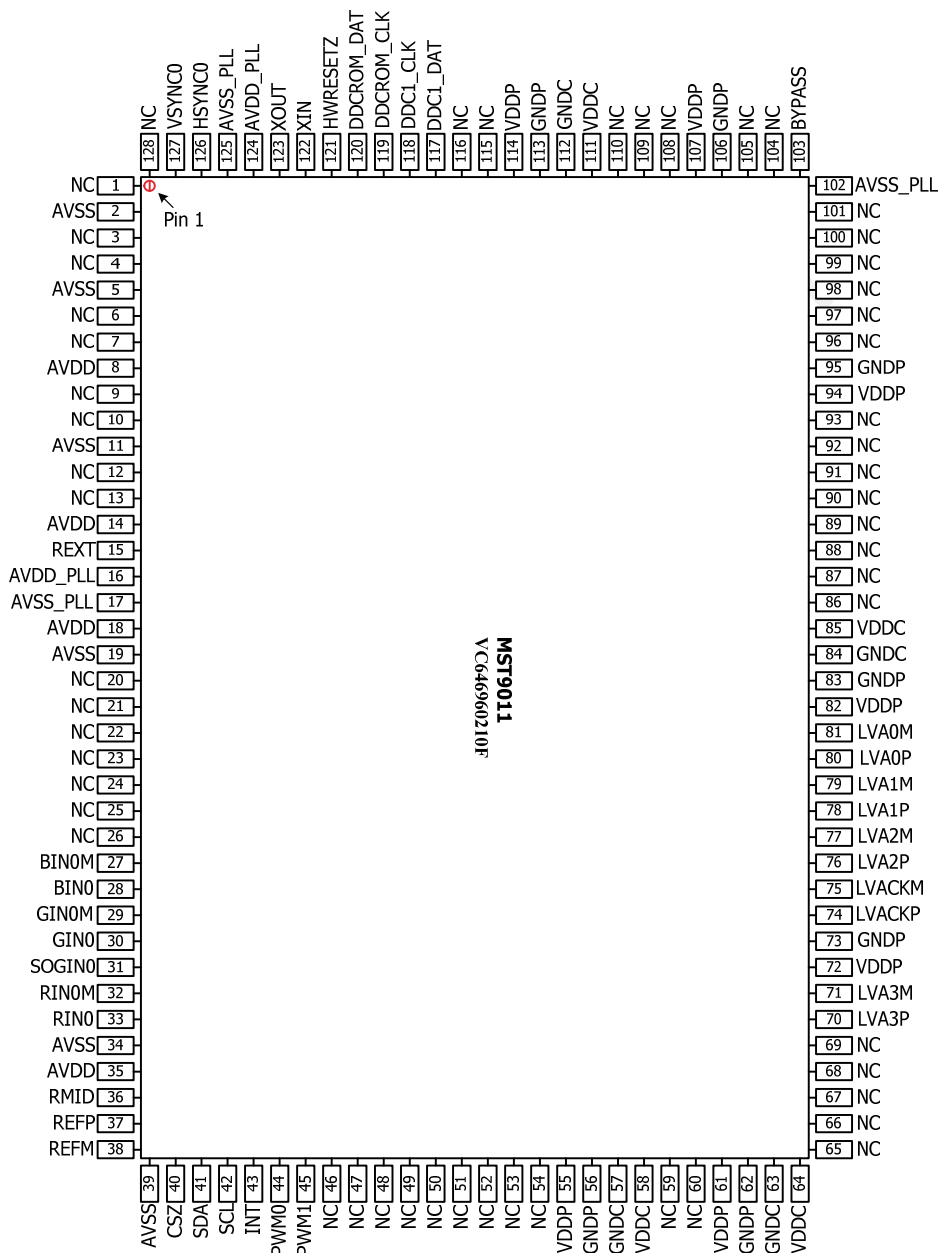
The MST9011 is a high performance, and fully integrated graphics processing IC solution for LCD monitors with resolutions up to XGA. It is configured with an integrated triple-ADC/PLL, a high quality scaling engine, an on-screen display controller, a built-in output clock generator, and LVDS display interface. To further reduce system costs, the MST9011 also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.



FEATURES

- High-quality zoom and shrink scaling engine (Compatible with VGA thru XGA)
- Integrated 8-bit triple-ADC/PLL
- On-screen display controller (OSD)
- Support single-RGB inputs
- Support composite sync and SOG separator
- Programmable 10-bit gamma correction
- Integrated Brightness & Contrast control adjustment
- Support PWM backlit intensity control
- Support sRGB
- Green PC and low EMI features
- Built-in LVDS transmitter
- Low standby power mode (< 5mA)
- **High-Performance Scaling Engine**
 - Programmable shrink/zoom capabilities
 - High-quality scaling for all VESA and IBM mode to fit screen
 - Variable sharpness control
- **Analog RGB Compliant Input Port**
 - Supports up to XGA at 85Hz
 - Supports Composite Sync and SOG (Sync-on-Green) separator
- **Auto-Detection/Tune**
 - Auto input signal format (SOG, Composite, Separated HSYNC, VSYNC, and DE), and input mode (all VESA & IBM modes w/ resolution and polarity) detection
 - Auto-tuning function including phasing, positioning, offset, gain, and jitter detection
- Smart screen-fitting
- **On-Screen OSD Controller**
 - Built-in OSD generator with 226 character font programmable RAM
 - Internal OSD rotation degree of 90 and 270
 - Gradient color function
 - Pattern generator for production test
 - Support OSD MUX and alpha blending capability
- **LVDS Display Interface**
 - Single pixel with max. output LVDS clock rate of 85 MHz
 - Support 2 data output formats: Thine & TI data mappings
 - Compatible with TIA/EIA
 - With 6/8 bits options
 - Reduced swing for LVDS for low EMI
 - Low power single 3.3V CMOS design
 - Power-down mode
- **External Connection Component**
 - Built-in DDC circuit

PIN DIAGRAM



BA033

Regulator, low drop-out type with ON/OFF switch

BAST / BASFP series

The BAST and BASFP series are variable, fixed output low drop-out type voltage regulators with an ON/OFF switch.

These regulators are used to provide a stabilized output voltage from a fluctuating DC input voltage.

Fixed output voltages are 3.3V, 5V, 6V(SFP), 7V, 8V, 9V, 10V(ST), 12V(ST). The maximum current capacity is 1 A for each of the above voltages.

! Application

Constant voltage power supply

! Features

- 1) Built-in overvoltage protection circuit, overcurrent protection circuit and thermal shutdown circuit
- 2) TO220FP-5, TO252-5 standard packages can be accommodated in wide application.
- 3) 0 A (design value) circuit current when switch is off
- 4) Richly diverse lineup.
- 5) Low minimum I/O voltage differential.

! Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V _{CC}	35	V
Power dissipation	Pd	2000 ^{*1}	mW
		1000 ^{*2}	
Operating temperature	T _{opr}	-40~+85	°C
Storage temperature	T _{stg}	-55~+150	°C
Peak applied voltage	V _{surge}	50 ^{*3}	V

^{*1} Reduced by 16mW for each increase in Ta of 1°C over 25°C.

^{*2} Reduced by 8mW for each increase in Ta of 1°C over 25°C.

^{*3} Voltage application time : 200 msec. or less

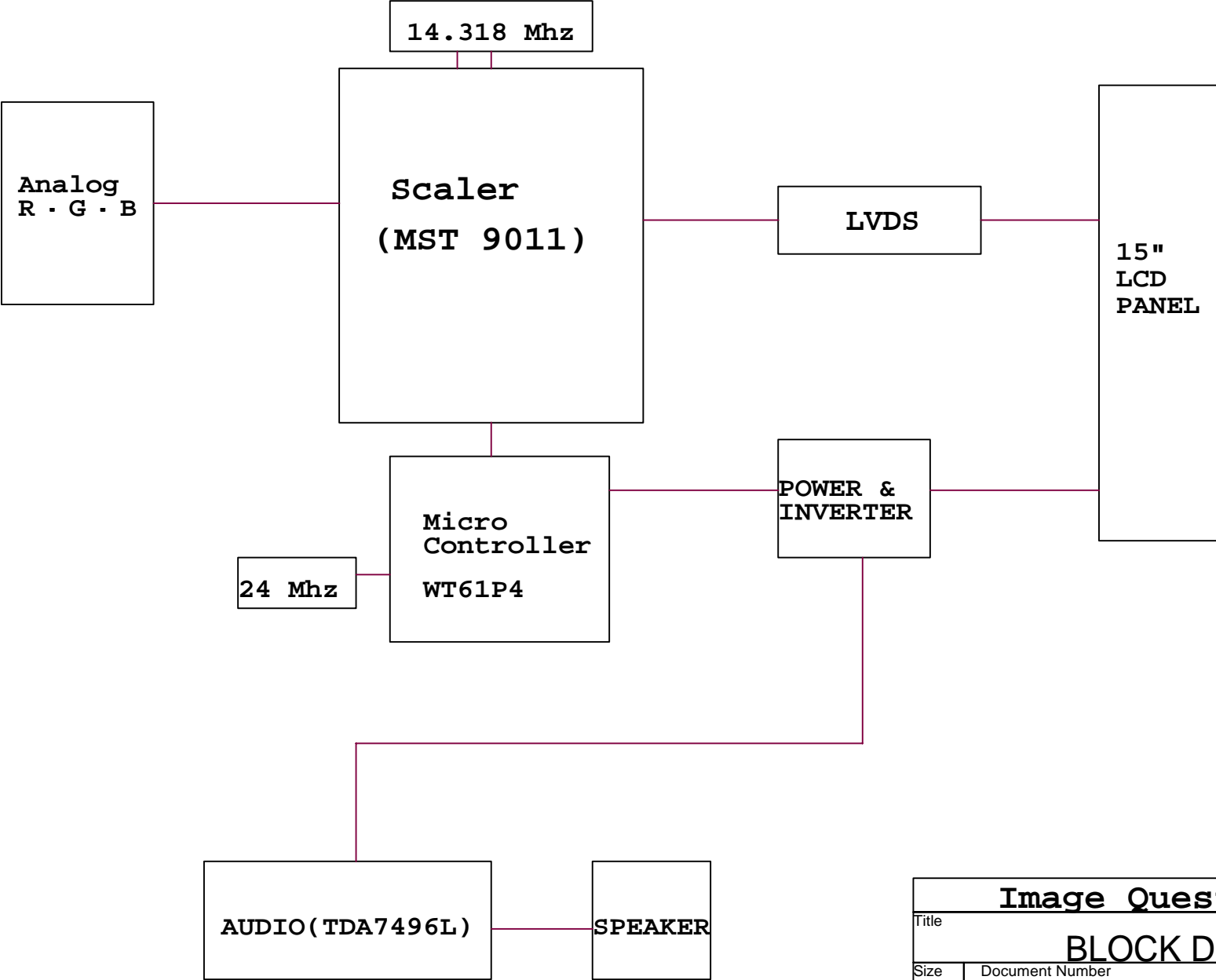
BA033ST / SFP

Parameter	Symbol	Min.	Max.	Unit
Input voltage	V _{CC}	4.3	25	V
Output current	I _O	-	1	A

BA033ST / SFP (unless otherwise noted, Ta=25 °C, V_{CC}=8 V, I_O=500 mA)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement circuit
Power save current	I _{ST}	-	0	10	A	OFF mode	Fig.4
Output voltage	V _{OI}	3.13	3.3	3.47	V		Fig.1
Input stability	Reg.I	-	20	100	mV	V _{CC} =4~3 25V	Fig.1
Ripple rejection ratio	R.R.	45	55	-	dB	e _{IN} =1Vrms, f=120Hz, I _O =100mA	Fig.2
Load regulation	Reg.L	-	50	150	mV	I _O =5mA 1A	Fig.1
Temperature coefficient of output voltage	T _{CV}	-	±0.02	-	% / °C	I _O =5mA, T _J =0~125°C	Fig.1
Minimum I/O voltage differential	V _d	-	0.3	0.5	V	V _{CC} =0.95V _O	Fig.3
Bias current	I _b	-	2.5	5.0	mA	I _O =0mA	Fig.4
Peak output current	I _O	1.0	1.5	-	A	T _J =25°C	Fig.1
Output short-circuit current	I _{OS}	-	0.4	-	A	V _{CC} =25V	Fig.5
ON mode voltage	V _{th1}	2.0	-	-	V	Output Active mode, I _O =0mA	Fig.6
OFF mode voltage	V _{th2}	-	-	0.8	V	Output OFF mode, I _O =0mA	Fig.6
Input high level current	I _{IN}	100	200	300	A	CTL=5V, I _O =0mA	Fig.6

BLOCK DIAGRAM
MODEL NAME : L50S




SAMSUNG PANEL PART LIST

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
1	C1	2011010014	CAP-AL-C,100UF 16V M 6357	
2	C10	CK7FXA1H103K	CAP-CC,0.01UF 50V K X7R 1608	
3	C11	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
4	C12	2012200005	CAP-AL-C,22UF 16V M 5052	
5	C13	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
6	C15	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
7	C16	2012200005	CAP-AL-C,22UF 16V M 5052	
8	C17	CK7FXA1H103K	CAP-CC,0.01UF 50V K X7R 1608	
9	C18	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
10	C19	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
11	C2	2011010014	CAP-AL-C,100UF 16V M 6357	
12	C20	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
13	C22	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
14	C26	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
15	C27	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
16	C28	2125090017	CAP-C-C,5PF 50V J COG 1608	
17	C29	2122210028	CAP-C-C,220PF 50V J COG 1608	
18	C30	2011000006	CAP-AL-C,10UF 16V M 4052	
19	C31	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
20	C32	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
21	C33	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
22	C34	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
23	C35	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
24	C36	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
25	C37	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
26	C38	2011000006	CAP-AL-C,10UF 16V M 4052	
27	C39	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
28	C40	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
29	C41	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
30	C42	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
31	C43	2011000006	CAP-AL-C,10UF 16V M 4052	
32	C44	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
33	C45	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
34	C46	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
35	C47	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
36	C48	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
37	C49	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
38	C5	2012200005	CAP-AL-C,22UF 16V M 5052	
39	C50	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
40	C51	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
41	C52	2011000006	CAP-AL-C,10UF 16V M 4052	
42	C53	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
43	C54	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
44	C55	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
45	C56	2011000006	CAP-AL-C,10UF 16V M 4052	
46	C57	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
47	C58	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
48	C59	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
49	C6	2012200005	CAP-AL-C,22UF 16V M 5052	
50	C60	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
51	C61	2014700009	CAP-AL-C,47UF 16V M 6352	
52	C62	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
53	C63	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
54	C64	2014700009	CAP-AL-C,47UF 16V M 6352	
55	C65	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
56	C66	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
57	C67	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
58	C68	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
59	C7	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
60	C70	2124710037	CAP-C-C,470PF 50V J COG 1608	
61	C73	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
62	C74	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
63	C75	2014700009	CAP-AL-C,47UF 16V M 6352	
64	C76	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
65	C77	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
66	C78	2011010014	CAP-AL-C,100UF 16V M 6357	
67	C79	2011000006	CAP-AL-C,10UF 16V M 4052	
68	C8	2012200005	CAP-AL-C,22UF 16V M 5052	
69	C80	2011010014	CAP-AL-C,100UF 16V M 6357	
70	C81	RK1JC0T0000J	RES-C,0 0.063W J 1608	
71	C82	RK1JC0T0000J	RES-C,0 0.063W J 1608	
72	C83	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
73	C84	2012210009	CAP-AL-C,220UF 10V M 6.3x7.5 8	
74	C9	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
75	CN1	E4204307601A	CONN,D-SUB 15P FEMALE STICK	
76	CN2	372010139501	CONN-M,SMAW200-12P	
77	CON1	3725005292	INVERTER CABLE, L50S/L70S	
78	CON4	3720101674	CONN-M,DF14A-20P-1.25H 20	
79	D1	3100100038	DI-AR,KDS226 SMD	
80	D2	3100100038	DI-AR,KDS226 SMD	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
81	D3	3100100038	DI-AR,KDS226 SMD	
82	D4	3101000376	DI-ZN,Z02W6.2V SMD	
83	D5	3101000376	DI-ZN,Z02W6.2V SMD	
84	D6	3101000376	DI-ZN,Z02W6.2V SMD	
85	D7	3101000376	DI-ZN,Z02W6.2V SMD	
86	D8	3101000376	DI-ZN,Z02W6.2V SMD	
87	J1	3721101253	CONN-F, AUDIO INPUT JACK	
88	J2	3721101252	CONN-F, HEAD PHONE JACK	
89	L10	3540800054	COR-CHP,HB-1M1608-600JT	
90	L11	3540800054	COR-CHP,HB-1M1608-600JT	
91	Q1	TT2N3904D	TR,SMD 2N3904D TAPPING	
92	Q2	TT2N3904D	TR,SMD 2N3904D TAPPING	
93	R1	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
94	R10	RK1JC0T0000J	RES-C,0 0.063W J 1608	
95	R11	RK1JC0T0000J	RES-C,0 0.063W J 1608	
96	R12	2607509010	RES-C,75 0.063W F 1608	
97	R13	2607509010	RES-C,75 0.063W F 1608	
98	R14	RK1JC0T0101J	RES-C,100 0.063W J 1608	
99	R15	RK1JC0T0000J	RES-C,0 0.063W J 1608	
100	R16	2607509010	RES-C,75 0.063W F 1608	
101	R17	RK1JC0T0101J	RES-C,100 0.063W J 1608	
102	R18	RK1JC0T0000J	RES-C,0 0.063W J 1608	
103	R19	RK1JC0T0101J	RES-C,100 0.063W J 1608	
104	R2	RK1JC0T0000J	RES-C,0 0.063W J 1608	
105	R20	RK1JC0T0000J	RES-C,0 0.063W J 1608	
106	R21	2602009011	RES-C,20 0.063W J 1608	
107	R22	RK1JC0T0000J	RES-C,0 0.063W J 1608	
108	R23	RK1JC0T0000J	RES-C,0 0.063W J 1608	
109	R24	RK1JC0T0101J	RES-C,100 0.063W J 1608	
110	R29	RK1JC0T0101J	RES-C,100 0.063W J 1608	
111	R3	RK1JC0T0101J	RES-C,100 0.063W J 1608	
112	R31	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
113	R32	2603900008	RES-C,390 0.063W F 1608	
114	R35	RK1JC0T0000J	RES-C,0 0.063W J 1608	
115	R38	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
116	R39	2608201013	RES-C,8.2K 0.1W J 1608	
117	R4	RK1JC0T0000J	RES-C,0 0.063W J 1608	
118	R40	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
119	R41	RK1JC0T0105J	RES-C,1M 0.063W J 1608	
120	R42	2602000010	RES-C,200 0.063W J 1608	
121	R43	RK1JC0T0103J	RES-C,10K 0.063W J 1608	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
122	R44	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
123	R45	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
124	R46	RK1JC0T0101J	RES-C,100 0.063W J 1608	
125	R47	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
126	R48	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
127	R49	RK1JC0T0101J	RES-C,100 0.063W J 1608	
128	R5	RK1JC0T0000J	RES-C,0 0.063W J 1608	
129	R50	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
130	R51	RK1JC0T0471J	RES-C,470 0.063W J 1608	
131	R52	2602202015	RES-C,22K 0.063W J 1608	
132	R53	RK1JC0T0471J	RES-C,470 0.063W J 1608	
133	R54	RK1JC0T0471J	RES-C,470 0.063W J 1608	
134	R55	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
135	R58	RK1JC0T0471J	RES-C,470 0.063W J 1608	
136	R59	RK1JC0T0471J	RES-C,470 0.063W J 1608	
137	R6	RK1JC0T0101J	RES-C,100 0.063W J 1608	
138	R60	2602000010	RES-C,200 0.063W J 1608	
139	R61	2602000010	RES-C,200 0.063W J 1608	
140	R62	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
141	R63	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
142	R64	2607500012	RES-C,750 0.063W J 1608	
143	R65	2607500012	RES-C,750 0.063W J 1608	
144	R66	RK1JC0T0101J	RES-C,100 0.063W J 1608	
145	R67	RK1JC0T0101J	RES-C,100 0.063W J 1608	
146	R68	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
147	R69	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
148	R7	RK1JC0T0000J	RES-C,0 0.063W J 1608	
149	R70	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
150	R71	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
151	R72	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
152	R73	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
153	R74	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
154	R75	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
155	R77	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
156	R78	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
157	R8	RK1JC0T0000J	RES-C,0 0.063W J 1608	
158	R9	RK1JC0T0101J	RES-C,100 0.063W J 1608	
159	RN1	2594701009	RES-C-NET,4.7K 0.063W J 3216	
160	U1	3200001392	IC-LIN,RC1117-3.3 SOT	
161	U2	3200001462	IC-LIN,RC1117ST-2.5 SOT	
162	U3	3200001582	IC-LIN,BA033SFP TO252-5	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
163	U4	3205001418	IC-U,MST9011 XGA	
164	U5	3205001409	WT61P4 PLCC	
165	U5	3721100621	CONN-F,PLL-44-PPS-T-M 44	
166	U6	3203000879	IC-MEMO,S524A60X81-SCB0	
167	U7	3200001310	IC-LIN,TDA7496L DIP	
168	Y1	3530200505	VIB-QUARTZ,SX-1 SMD 14.31818MH	
169	Y2	3530200586	VIB-QUARTZ,SMD 24MHZ 22PF	
170		3330500231	LCD,LTM150XH-L01	
171		3550100115	SPEAKER ASS'Y, L50S/L70S	
172		3610200117	POWER+INVERTER,L50S SS/CHIMEI	
173		3725005295	CONN-A, 12P OSD CABLE ASS'Y 20	
174		3725005302	CONN-A,20P LVDS CABLE 80MM L50	
175		3758500474	CBL-SGN,1.5MT BLACK 5.5PAI DET	
176		3758500486	SIGNAL+POWER BLACK CABLE ASS'Y	
177		5001000666	SCR-MC,BIN + MC 3*5	
178		5004000190	SCR-TT,BIN + MC 3*8	
179		5004000192	SCR-TT,BIN + MC 3*6	
180		5004000194	SCR-TT,BIN + MC 4*10	
181		5004000197	SCR-TT,BIN + MC 3X10	
182		5004000204	SCR-TT,BIN + MC 3*8	
183		5004000208	SCR-TT,BIN + MC 4*12	
184		6101220800	MAIN FRAME,L50S	
185		6101220900	STAND FRAME	
186		6101221301	MAIN FRAME ASSY/SEC,L50S	
187		6110279200	HINGE BRKT L	
188		6110279300	HINGE BRKT R	
189		6115025100	HINGE ASSY,L50S	
190		6128010165	GASKET EMI, 10X 8 X120	
191		6128010166	GASKET EMI, 10X 6 X130	
192		6128010167	GASKET EMI, 10X 6 X70	
193		6128010168	GASKET EMI, 20X15X15	
194		6201318300	COVER FRONT L50S	
195		6201318401	COVER PANEL,OEM L50S(DG)	
196		6201318501	COVER REAR,L50S OEM(DG)	
197		6201318601	HINGE CAP L,L50S(DG)	
198		6201318701	HINGE CAP R,L50S(DG)	
199		6201318801	STAND FRONT,L50S(DG)	
200		6201318901	STAND REAR,L50S(DG)	
201		6201319001	STAND BASE,L50S(DG)	
202		6201319650	COVER,F.ASSY,L50S HIE SILVER	
203		6201319902	STAND ASSY L50S(DG)	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
204		6201321101	STAND BASE ASSY,L50S(DG)	
205		6210107103	EMI SHEET(AL) 30X20	
206		6210107113	AL TAPE,60X40 PE COATING	
207		6215240401	KNOB TACT,L50S OEM(COAT'G)	
208		6220085600	LED LENS	
209		6223066800	HOLDER,HANDLE TOP	
210		6223066900	HOLDER,HANDLE BOTTOM	
211		6223087700	PANEL SUPPORT SEC,Q15N	
212		6243028300	BAG,PE(ST) CLEAR 14/15ALL	
213		6253119900	CUSHION TOP,L50S	
214		6253120000	CUSHION BOTTOM,L50S	
215		6261044600	RUBBER FOOT,L50S	
216		6301191400	PALLET PAD,ALL MODEL,SW-3	
217		6301193703	CTN BOX SW-3(B) L50S IQT(DOM)	
218		6301194800	BAND SQUARE,L50S OEM	
219		6309030000	PAD,PALLET CTN PBE/U 1517	
220		6309037300	PAD,PALLET ANGLE	
221		6316346369	BACK LABEL L50S IQT(DOM)/SILVE	
222		6316349298	SMALL TCO'99 CABINET STICKER	
223		6316349302	ENERGY ECONOMY MARK STICKER	
224		6320236200	USER'S GUIDE L50S IQT(DOM)/OEM	
225		301070082601	OSD B/D ASS'Y, L50S/L70S	
226		304100106501	PCB-DOUBLE,L50S LVDS 110*96	
227		375850041602	CBL-SGN,AUDIO INPUT CABLE 1	
228		631634925214	INF/ICM FILE IQT(DOM) ALL	
229		631634925501	SILVER STICKER	
230		632703010101	SHEET,TCO 99 ALL MODEL	
231		B4204513263B	LABEL,B/CODE 64KHZ(DIC21)	
232		B4204669107	KIT LAB & MAN L50S/99 DOM/SILV	
233		B4209500302A	BAG PE,Q15N HECMVEL(350x300)	
234		B4209501301C	BAG PE,MANUAL T0.03	
235		B4210333351	LCD MEC.ASSY/SEC,L50S/SILVER	
236		B4210333450	KIT COVER ASSY,L50S/SILVER	
237		B4210333502	PACKING ASSY,MANUAL L50S	
238		E4205020702	MAIN ASSY/S/C,L50S EXP	
239		E4208422912	PCBA MAIN(AM)/S,L50S	
240		E4208522902	PCBA MAIN(MM)/S,L50S	
241		E4208622902	PCBA MAIN(TM)/S,L50S	
242		E44077018020	CORD,AC 250V 10A WALL	
243		M17744006012	SCREW,BIN(+) M4*6 MSZPC	


CHIME PANEL PART LIST

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1	C1	2011010014	CAP-AL-C,100UF 16V M 6357	
2	C10	CK7FXA1H103K	CAP-CC,0.01UF 50V K X7R 1608	
3	C11	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
4	C12	2012200005	CAP-AL-C,22UF 16V M 5052	
5	C13	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
6	C15	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
7	C16	2012200005	CAP-AL-C,22UF 16V M 5052	
8	C17	CK7FXA1H103K	CAP-CC,0.01UF 50V K X7R 1608	
9	C18	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
10	C19	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
11	C2	2011010014	CAP-AL-C,100UF 16V M 6357	
12	C20	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
13	C22	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
14	C26	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
15	C27	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
16	C28	2125090017	CAP-C-C,5PF 50V J COG 1608	
17	C29	2122210028	CAP-C-C,220PF 50V J COG 1608	
18	C30	2011000006	CAP-AL-C,10UF 16V M 4052	
19	C31	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
20	C32	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
21	C33	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
22	C34	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
23	C35	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
24	C36	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
25	C37	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
26	C38	2011000006	CAP-AL-C,10UF 16V M 4052	
27	C39	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
28	C40	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
29	C41	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
30	C42	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
31	C43	2011000006	CAP-AL-C,10UF 16V M 4052	
32	C44	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
33	C45	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
34	C46	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
35	C47	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
36	C48	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
37	C49	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
38	C5	2012200005	CAP-AL-C,22UF 16V M 5052	
39	C50	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	

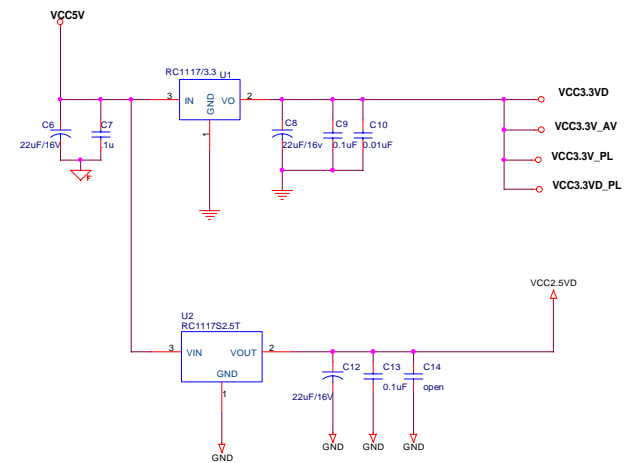
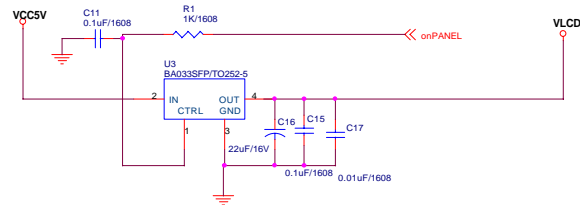
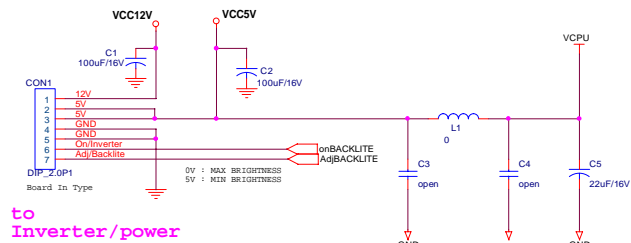
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40	C51	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
41	C52	2011000006	CAP-AL-C,10UF 16V M 4052	
42	C53	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
43	C54	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
44	C55	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
45	C56	2011000006	CAP-AL-C,10UF 16V M 4052	
46	C57	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
47	C58	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
48	C59	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
49	C6	2012200005	CAP-AL-C,22UF 16V M 5052	
50	C60	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
51	C61	2014700009	CAP-AL-C,47UF 16V M 6352	
52	C62	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
53	C63	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
54	C64	2014700009	CAP-AL-C,47UF 16V M 6352	
55	C65	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
56	C66	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
57	C67	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
58	C68	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
59	C7	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
60	C70	2124710037	CAP-C-C,470PF 50V J COG 1608	
61	C73	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
62	C74	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
63	C75	2014700009	CAP-AL-C,47UF 16V M 6352	
64	C76	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
65	C77	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
66	C78	2011010014	CAP-AL-C,100UF 16V M 6357	
67	C79	2011000006	CAP-AL-C,10UF 16V M 4052	
68	C8	2012200005	CAP-AL-C,22UF 16V M 5052	
69	C80	2011010014	CAP-AL-C,100UF 16V M 6357	
70	C81	RK1JC0T0000J	RES-C,0 0.063W J 1608	
71	C82	RK1JC0T0000J	RES-C,0 0.063W J 1608	
72	C83	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
73	C84	2012210009	CAP-AL-C,220UF 10V M 6.3x7.5 8	
74	C9	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
75	CN1	E4204307601A	CONN,D-SUB 15P FEMALE STICK	
76	CN2	372010139501	CONN-M,SMAW200-12P	
77	CON1	3725005292	INVERTER CABLE, L50S/L70S	
78	CON4	3720101674	CONN-M,DF14A-20P-1.25H 20	
79	D1	3100100038	DI-AR,KDS226 SMD	
80	D2	3100100038	DI-AR,KDS226 SMD	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
81	D3	3100100038	DI-AR,KDS226 SMD	
82	D4	3101000376	DI-ZN,Z02W6.2V SMD	
83	D5	3101000376	DI-ZN,Z02W6.2V SMD	
84	D6	3101000376	DI-ZN,Z02W6.2V SMD	
85	D7	3101000376	DI-ZN,Z02W6.2V SMD	
86	D8	3101000376	DI-ZN,Z02W6.2V SMD	
87	J1	3721101253	CONN-F, AUDIO INPUT JACK	
88	J2	3721101252	CONN-F, HEAD PHONE JACK	
89	L10	3540800054	COR-CHP,HB-1M1608-600JT	
90	L11	3540800054	COR-CHP,HB-1M1608-600JT	
91	Q1	TT2N3904D	TR,SMD 2N3904D TAPPING	
92	Q2	TT2N3904D	TR,SMD 2N3904D TAPPING	
93	R1	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
94	R10	RK1JC0T0000J	RES-C,0 0.063W J 1608	
95	R11	RK1JC0T0000J	RES-C,0 0.063W J 1608	
96	R12	2607509010	RES-C,75 0.063W F 1608	
97	R13	2607509010	RES-C,75 0.063W F 1608	
98	R14	RK1JC0T0101J	RES-C,100 0.063W J 1608	
99	R15	RK1JC0T0000J	RES-C,0 0.063W J 1608	
100	R16	2607509010	RES-C,75 0.063W F 1608	
101	R17	RK1JC0T0101J	RES-C,100 0.063W J 1608	
102	R18	RK1JC0T0000J	RES-C,0 0.063W J 1608	
103	R19	RK1JC0T0101J	RES-C,100 0.063W J 1608	
104	R2	RK1JC0T0000J	RES-C,0 0.063W J 1608	
105	R20	RK1JC0T0000J	RES-C,0 0.063W J 1608	
106	R21	2602009011	RES-C,20 0.063W J 1608	
107	R22	RK1JC0T0000J	RES-C,0 0.063W J 1608	
108	R23	RK1JC0T0000J	RES-C,0 0.063W J 1608	
109	R24	RK1JC0T0101J	RES-C,100 0.063W J 1608	
110	R29	RK1JC0T0101J	RES-C,100 0.063W J 1608	
111	R3	RK1JC0T0101J	RES-C,100 0.063W J 1608	
112	R31	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
113	R32	2603900008	RES-C,390 0.063W F 1608	
114	R35	RK1JC0T0000J	RES-C,0 0.063W J 1608	
115	R38	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
116	R39	2608201013	RES-C,8.2K 0.1W J 1608	
117	R4	RK1JC0T0000J	RES-C,0 0.063W J 1608	
118	R40	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
119	R41	RK1JC0T0105J	RES-C,1M 0.063W J 1608	
120	R42	2602000010	RES-C,200 0.063W J 1608	
121	R43	RK1JC0T0103J	RES-C,10K 0.063W J 1608	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
122	R44	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
123	R45	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
124	R46	RK1JC0T0101J	RES-C,100 0.063W J 1608	
125	R47	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
126	R48	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
127	R49	RK1JC0T0101J	RES-C,100 0.063W J 1608	
128	R5	RK1JC0T0000J	RES-C,0 0.063W J 1608	
129	R50	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
130	R51	RK1JC0T0471J	RES-C,470 0.063W J 1608	
131	R52	2602202015	RES-C,22K 0.063W J 1608	
132	R53	RK1JC0T0471J	RES-C,470 0.063W J 1608	
133	R54	RK1JC0T0471J	RES-C,470 0.063W J 1608	
134	R55	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
135	R58	RK1JC0T0471J	RES-C,470 0.063W J 1608	
136	R59	RK1JC0T0471J	RES-C,470 0.063W J 1608	
137	R6	RK1JC0T0101J	RES-C,100 0.063W J 1608	
138	R60	2602000010	RES-C,200 0.063W J 1608	
139	R61	2602000010	RES-C,200 0.063W J 1608	
140	R62	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
141	R63	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
142	R64	2607500012	RES-C,750 0.063W J 1608	
143	R65	2607500012	RES-C,750 0.063W J 1608	
144	R66	RK1JC0T0101J	RES-C,100 0.063W J 1608	
145	R67	RK1JC0T0101J	RES-C,100 0.063W J 1608	
146	R68	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
147	R69	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
148	R7	RK1JC0T0000J	RES-C,0 0.063W J 1608	
149	R70	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
150	R71	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
151	R72	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
152	R73	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
153	R74	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
154	R75	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
155	R77	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
156	R78	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
157	R8	RK1JC0T0000J	RES-C,0 0.063W J 1608	
158	R9	RK1JC0T0101J	RES-C,100 0.063W J 1608	
159	RN1	2594701009	RES-C-NET,4.7K 0.063W J 3216	
160	U1	3200001392	IC-LIN,RC1117-3.3 SOT	
161	U2	3200001462	IC-LIN,RC1117ST-2.5 SOT	
162	U3	3200001582	IC-LIN,BA033SFP TO252-5	

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163	U4	3205001418	IC-U,MST9011 XGA	
164	U5	3205001409	WT61P4 PLCC	
165	U5	3721100621	CONN-F,PLL-44-PPS-T-M 44	
166	U6	3203000879	IC-MEMO,S524A60X81-SCB0	
167	U7	3200001310	IC-LIN,TDA7496L DIP	
168	Y1	3530200505	VIB-QUARTZ,SX-1 SMD 14.31818MH	
169	Y2	3530200586	VIB-QUARTZ,SMD 24MHZ 22PF	
170		3330500267	LCD,15" M150X3-L01	
171		3550100115	SPEAKER ASS'Y, L50S/L70S	
172		3610200117	POWER+INVERTER,L50S SS/CHIMEI	
173		3725005295	CONN-A, 12P OSD CABLE ASS'Y 20	
174		3725005302	CONN-A,20P LVDS CABLE 80MM L50	
175		3758500474	CBL-SGN,1.5MT BLACK 5.5PAI DET	
176		3758500481	SIGNAL+POWER BLACK CABLE ASS'Y	
177		5001000666	SCR-MC,BIN + MC 3*5	
178		5004000190	SCR-TT,BIN + MC 3*8	
179		5004000192	SCR-TT,BIN + MC 3*6	
180		5004000194	SCR-TT,BIN + MC 4*10	
181		5004000197	SCR-TT,BIN + MC 3X10	
182		5004000204	SCR-TT,BIN + MC 3*8	
183		5004000208	SCR-TT,BIN + MC 4*12	
184		6101220800	MAIN FRAME,L50S	
185		6101220900	STAND FRAME	
186		6101221301	MAIN FRAME ASSY/SEC,L50S	
187		6110279200	HINGE BRKT L	
188		6110279300	HINGE BRKT R	
189		6115025100	HINGE ASSY,L50S	
190		6128010165	GASKET EMI, 10X 8 X120	
191		6128010166	GASKET EMI, 10X 6 X130	
192		6128010167	GASKET EMI, 10X 6 X70	
193		6128010168	GASKET EMI, 20X15X15	
194		6201318300	COVER FRONT L50S	
195		6201318401	COVER PANEL,OEM L50S(DG)	
196		6201318501	COVER REAR,L50S OEM(DG)	
197		6201318601	HINGE CAP L,L50S(DG)	
198		6201318701	HINGE CAP R,L50S(DG)	
199		6201318801	STAND FRONT,L50S(DG)	
200		6201318901	STAND REAR,L50S(DG)	
201		6201319001	STAND BASE,L50S(DG)	
202		6201319650	COVER,F.ASSY,L50S HIE SILVER	
203		6201319902	STAND ASSY L50S(DG)	

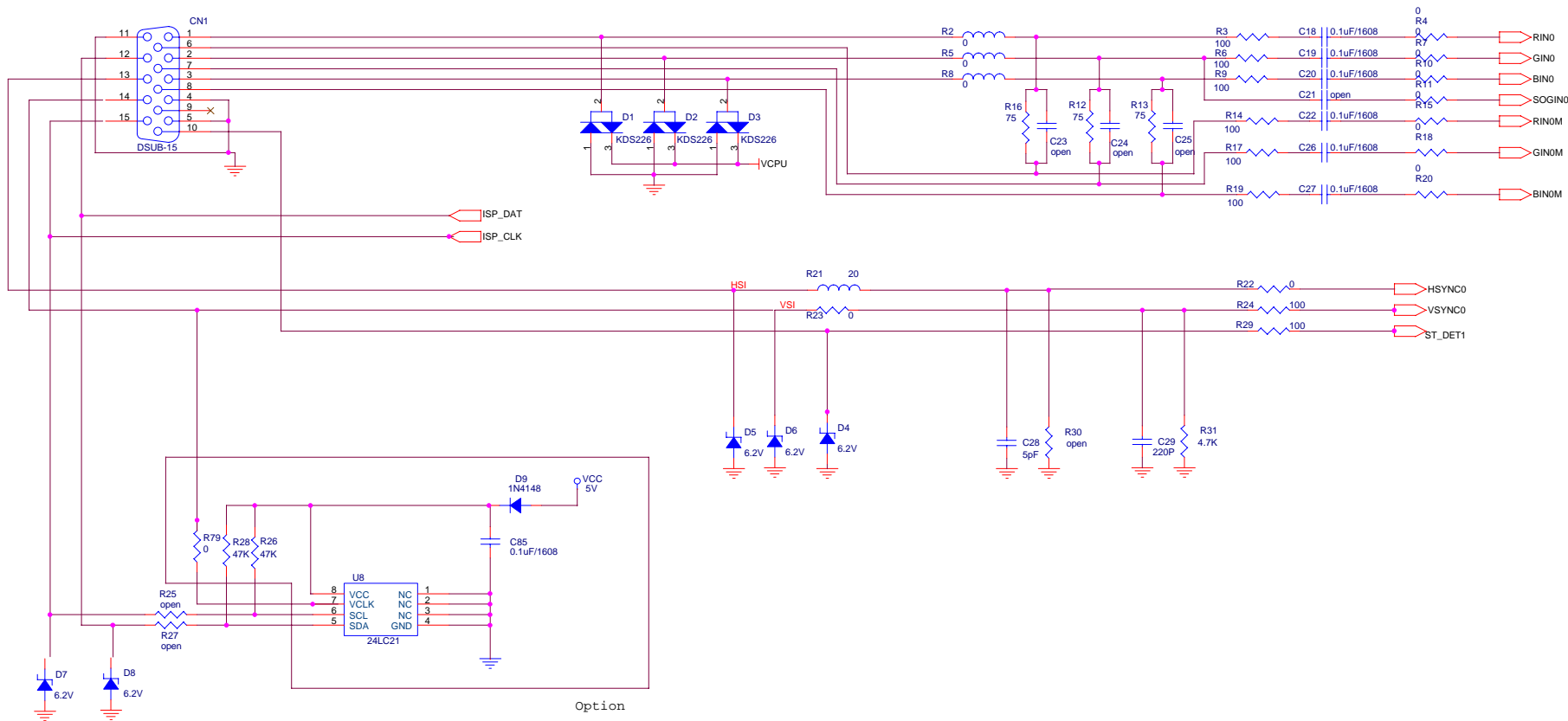
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204		6201321101	STAND BASE ASSY,L50S(DG)	
205		6210107103	EMI SHEET(AL) 30X20	
206		6210107113	AL TAPE,60X40 PE COATING	
207		6215240401	KNOB TACT,L50S OEM(COAT'G)	
208		6220085600	LED LENS	
209		6223066800	HOLDER,HANDLE TOP	
210		6223066900	HOLDER,HANDLE BOTTOM	
211		6223087700	PANEL SUPPORT SEC,Q15N	
212		6243028300	BAG,PE(ST) CLEAR 14/15ALL	
213		6243037901	MANUAL PE BAG	
214		6253119900	CUSHION TOP,L50S	
215		6253120000	CUSHION BOTTOM,L50S	
216		6261044600	RUBBER FOOT,L50S	
217		6301191400	PALLET PAD,ALL MODEL,SW-3	
218		6301193700	BOX CARTON,Q15N	
219		6301194800	BAND SQUARE,L50S OEM	
220		6309030000	PAD,PALLET CTN PBE/U 1517	
221		6309037300	PAD,PALLET ANGLE	
222		6316332934	BACK LABEL,L50S IQT(EXP)/SILVE	
223		6316349298	SMALL TCO'99 CABINET STICKER	
224		6320230228	CD MANUAL IQT(EXP) ALL	
225		301070082601	OSD B/D ASS'Y, L50S/L70S	
226		304100106501	PCB-DOUBLE,L50S LVDS 110*96	
227		375850041602	CBL-SGN,AUDIO INPUT CABLE 1	
228		632703520303	INSTALL GUIDE & SERVICE CENTER	
229		B4204513263B	LABEL,B/CODE 64KHZ(DIC21)	
230		B4204669108	KIT LAB & MAN,L50S/99 HIE/SILV	
231		B4209500302A	BAG PE,Q15N HECMVEL(350x300)	
232		B4210333351	LCD MEC.ASSY/SEC,L50S/SILVER	
233		B4210333450	KIT COVER ASSY,L50S/SILVER	
234		B4210333501	PACKING ASSY,L50S	
235		E4205020702	MAIN ASSY/S/C,L50S EXP	
236		E42077080050	CORD AC,220V WALL BK 1.83M	
237		E4208422912	PCBA MAIN(AM)/S,L50S	
238		E4208522902	PCBA MAIN(MM)/S,L50S	
239		E4208622902	PCBA MAIN(TM)/S,L50S	
240		M17744006012	SCREW,BIN(+) M4*6 MSZPC	



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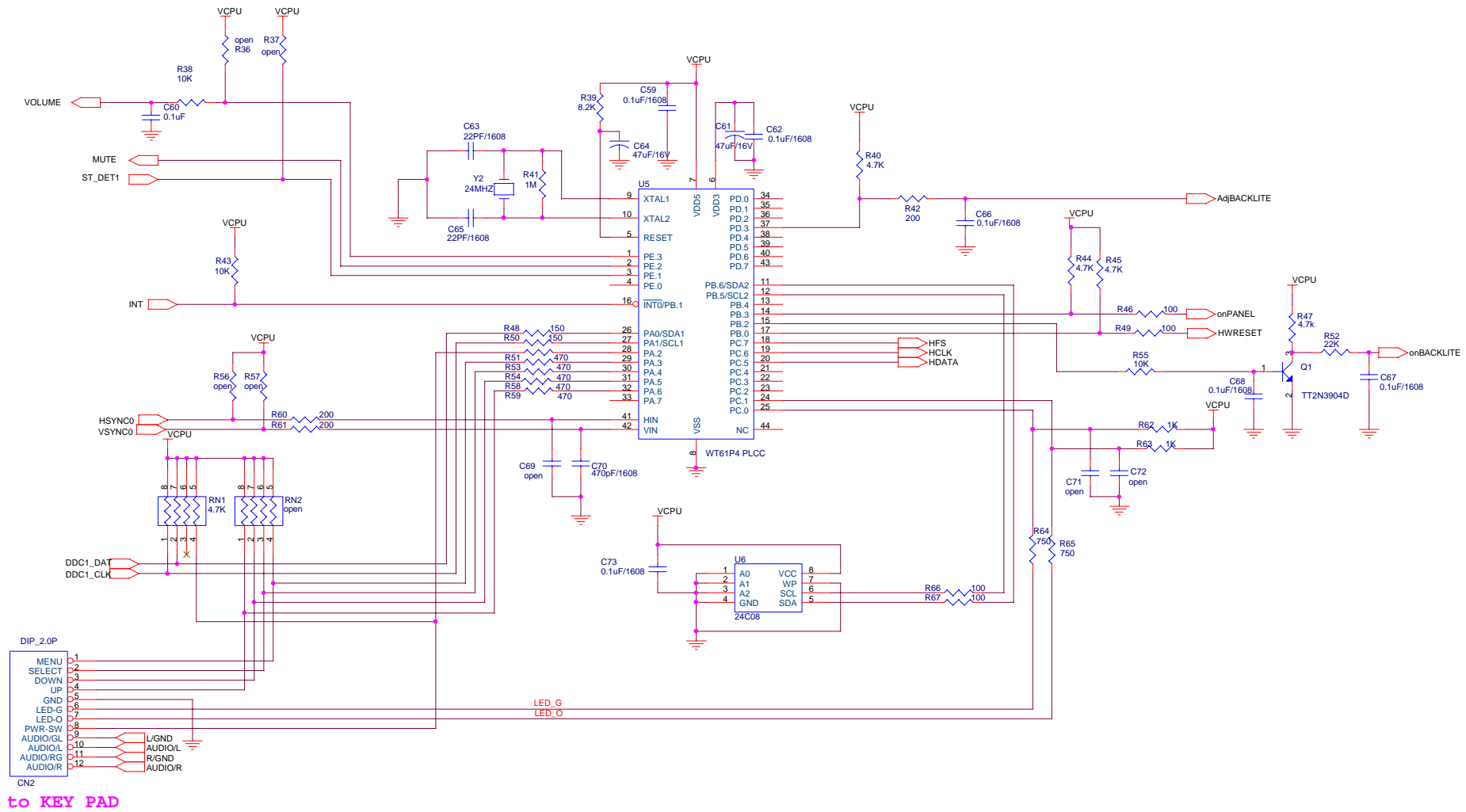
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Date: Friday, April 25, 2003

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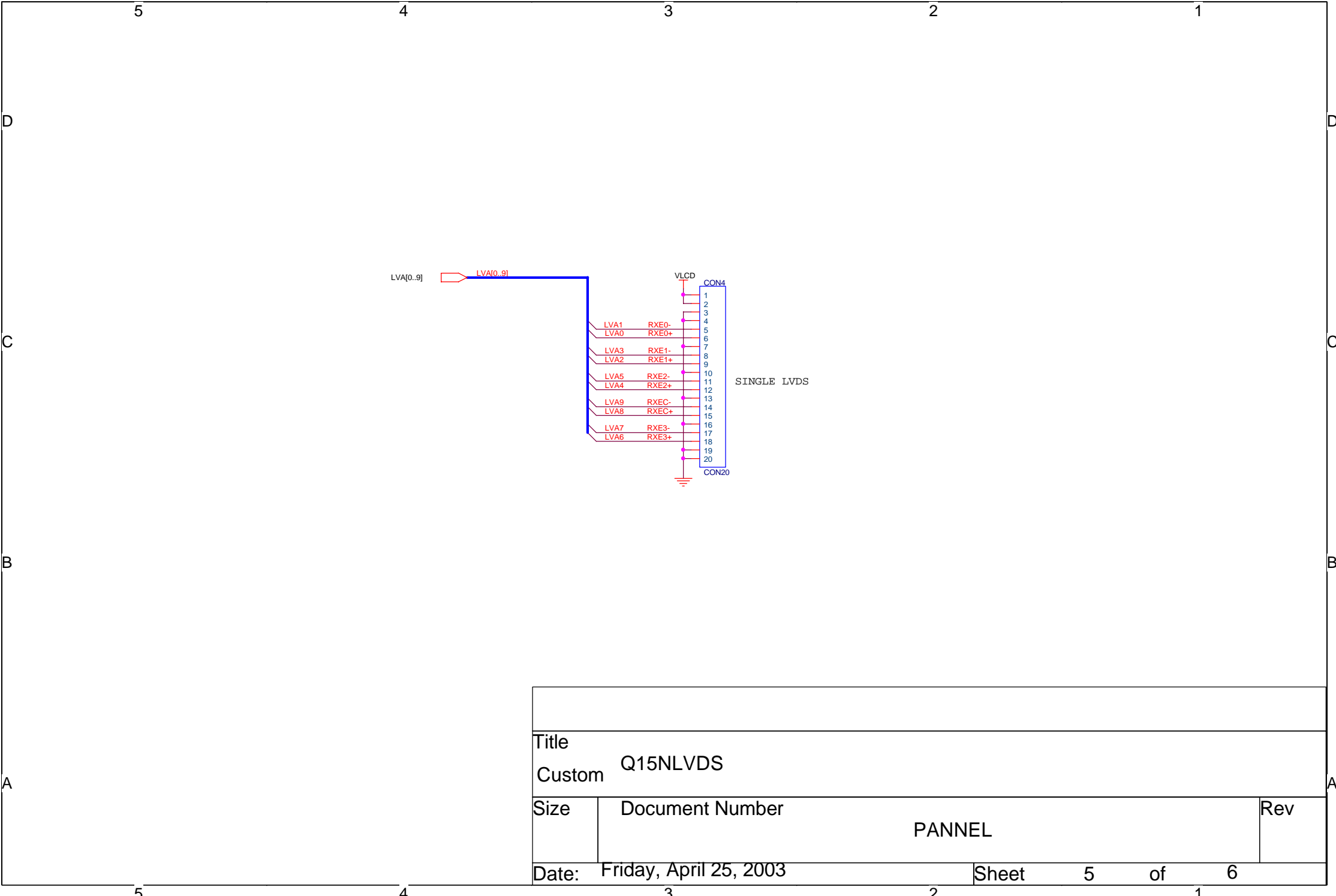
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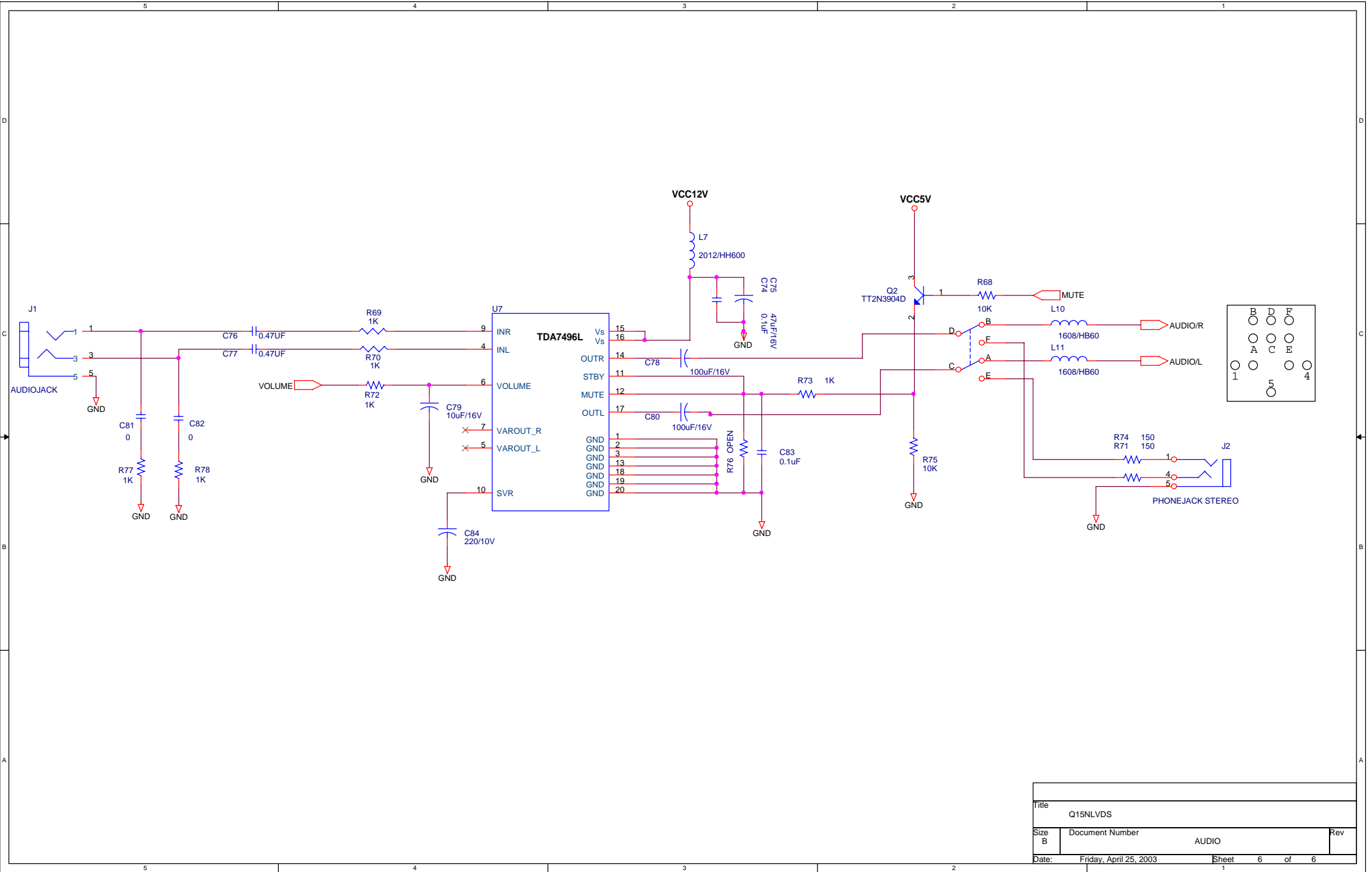
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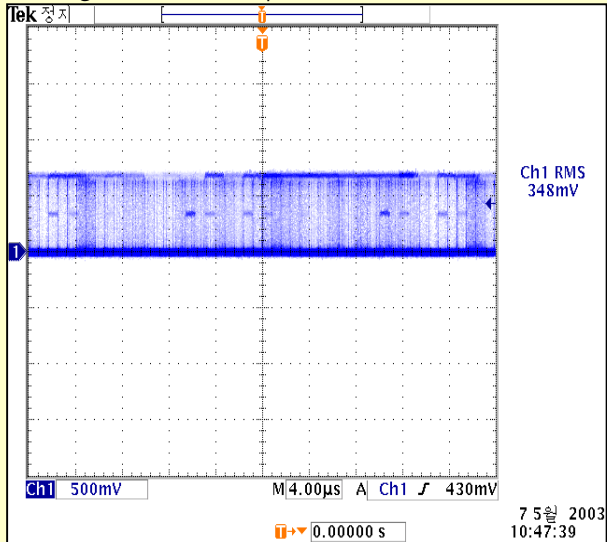


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	PANNEL		
Date:	Friday, April 25, 2003		Rev
	Sheet	5 of 6	

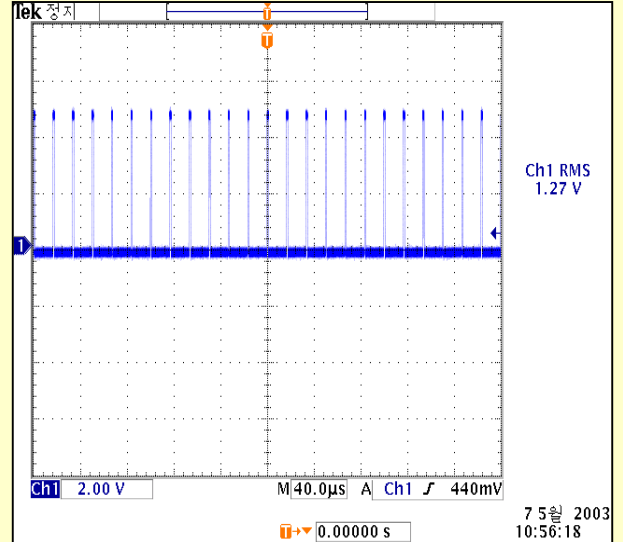


LVDS WAVE FORM

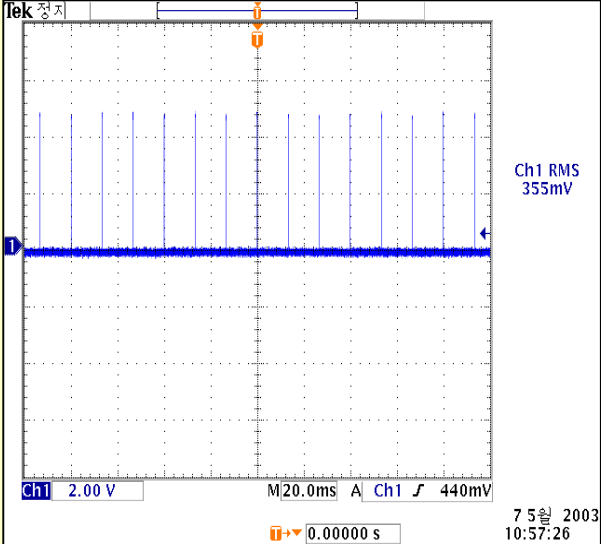
1. Signal – RED input



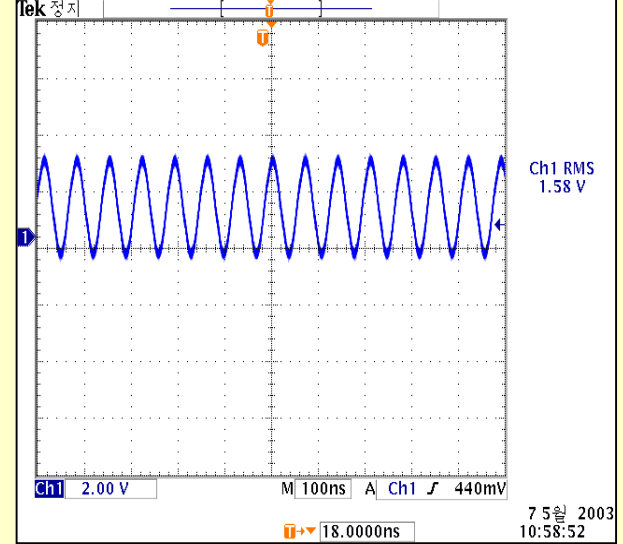
2. H-SYNC



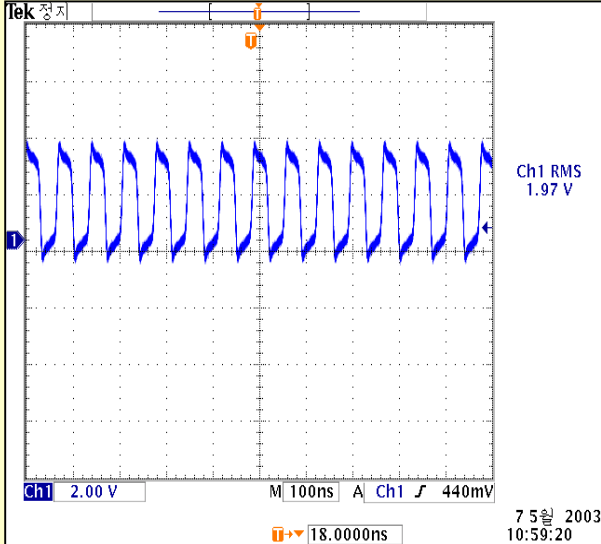
3. V-SYNC



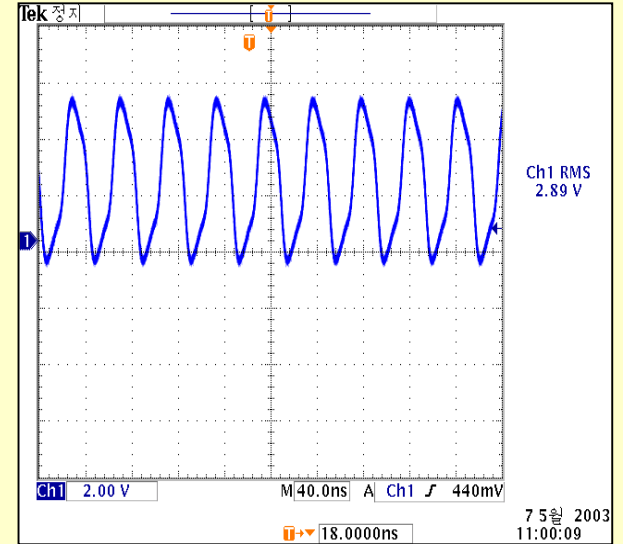
4. XTAL 14.318M – XIN



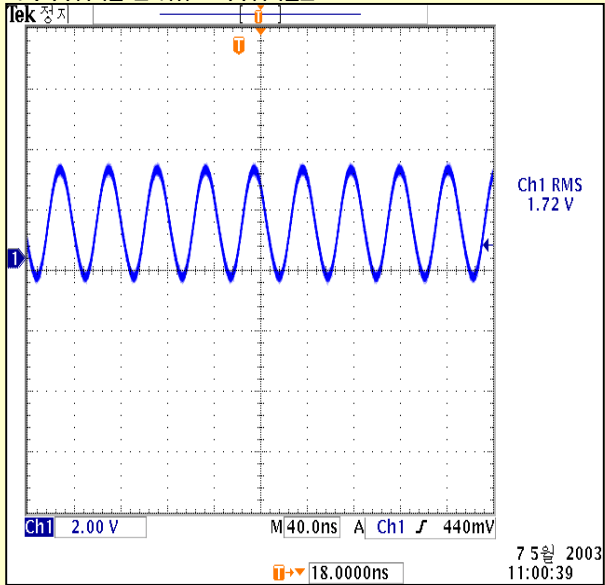
5. XTAL 14.318M – XOUT



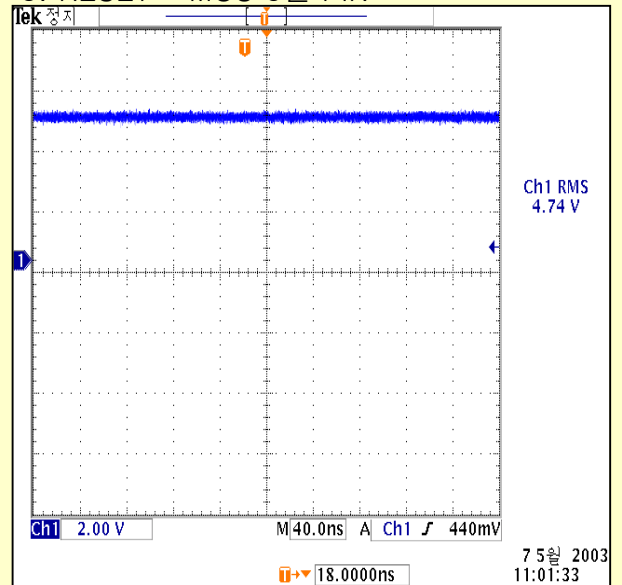
6. XTAL 24M – XTAL1



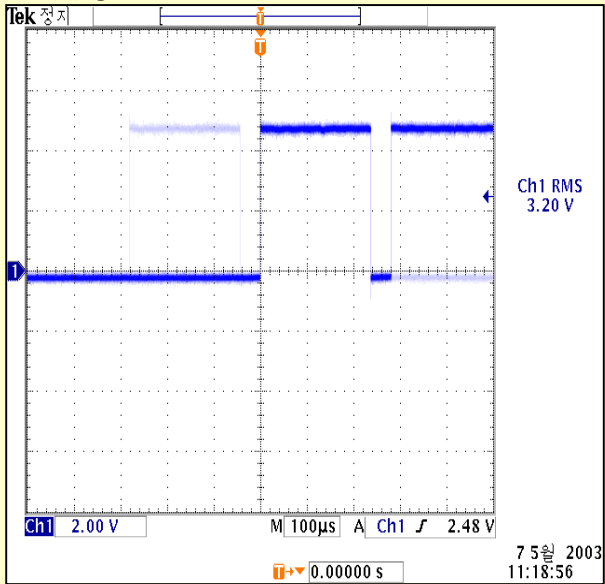
7. XTAL 24M - XTAL2



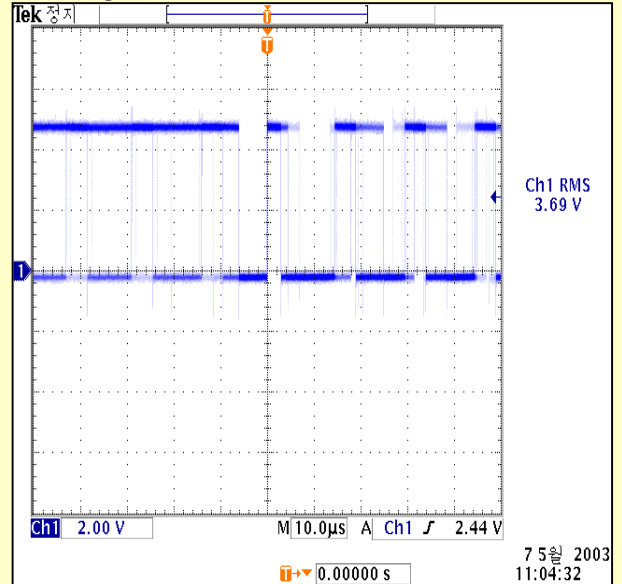
8. RESET - MCU 5번 PIN



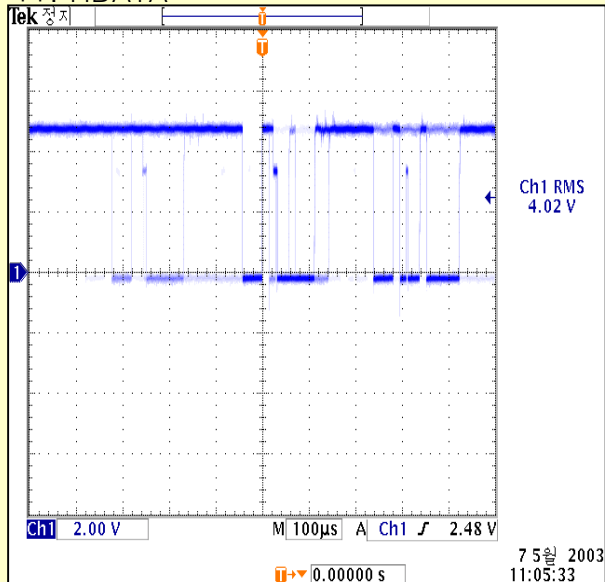
9. HFS



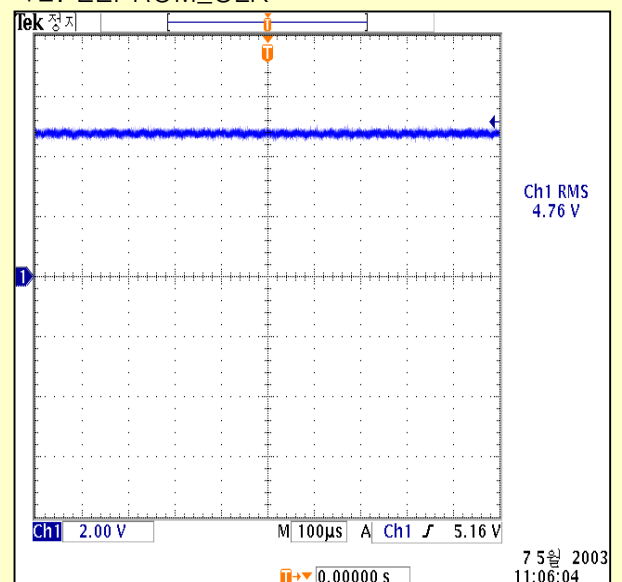
10. HCLK



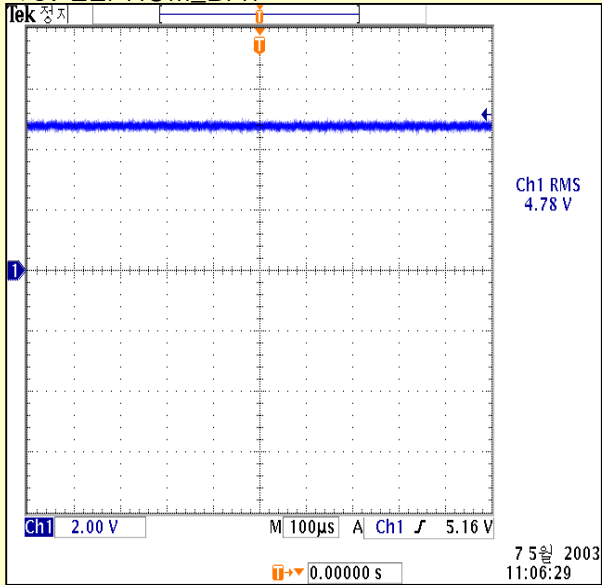
11. HDATA



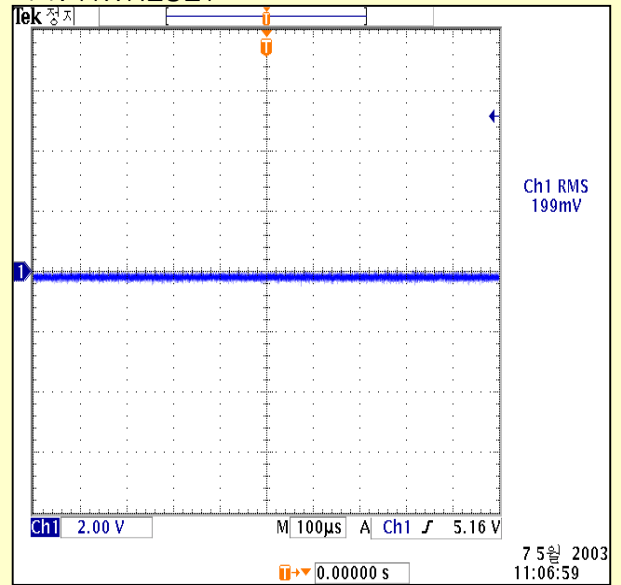
12. EEPROM_CLK



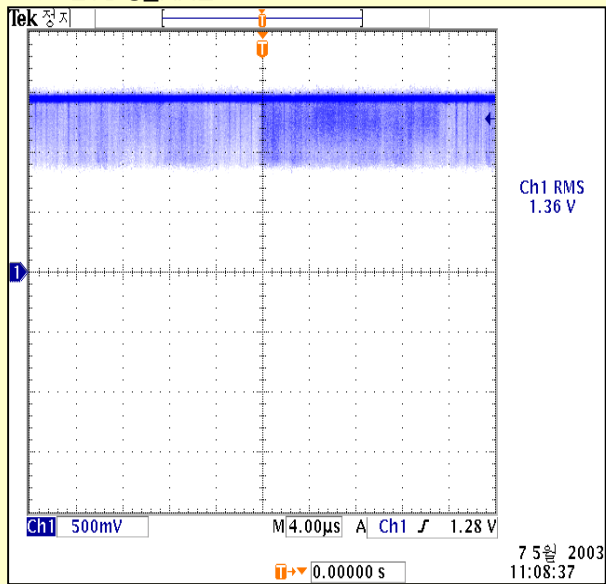
13. EEPROM_DAT



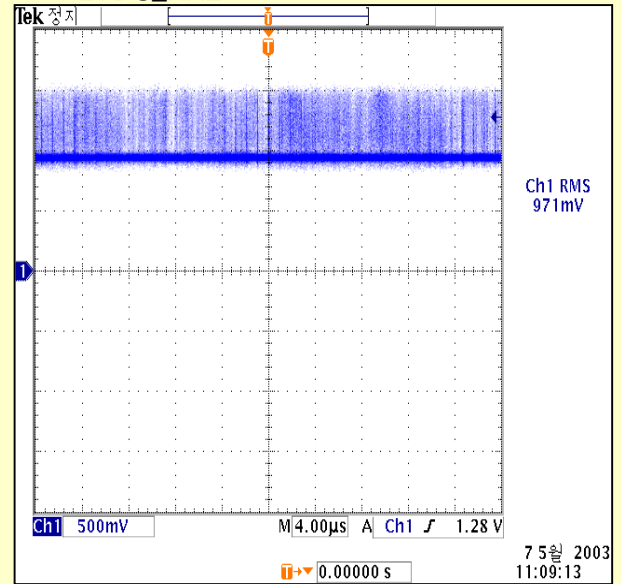
14. HWRESET



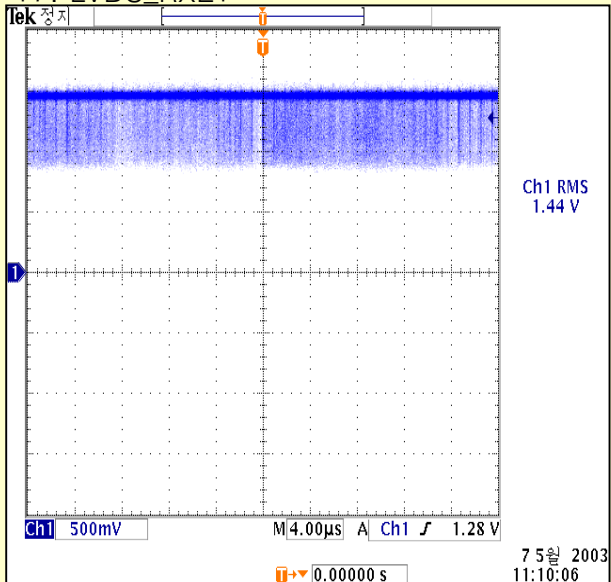
15. LVDS_RXE0-



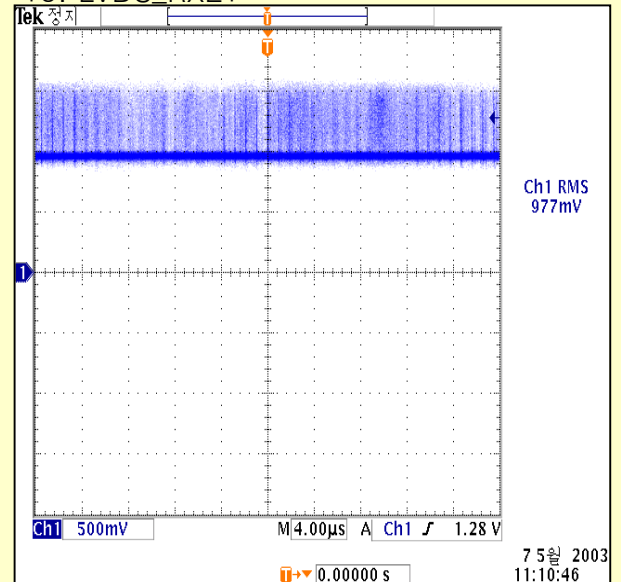
16. LVDS_RXE0+



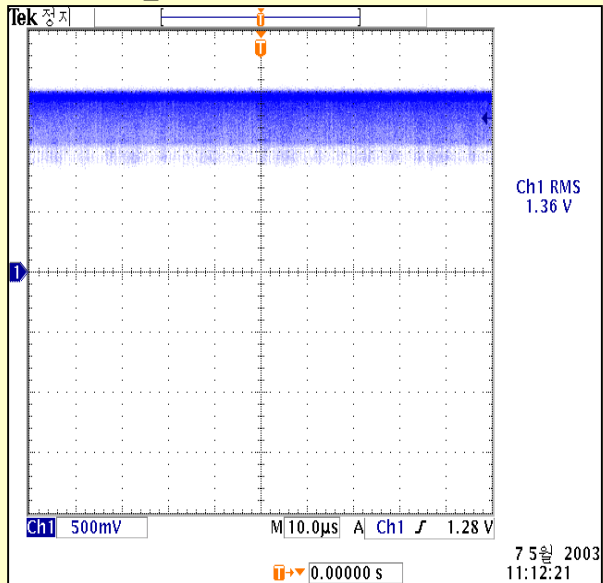
17. LVDS_RXE1-



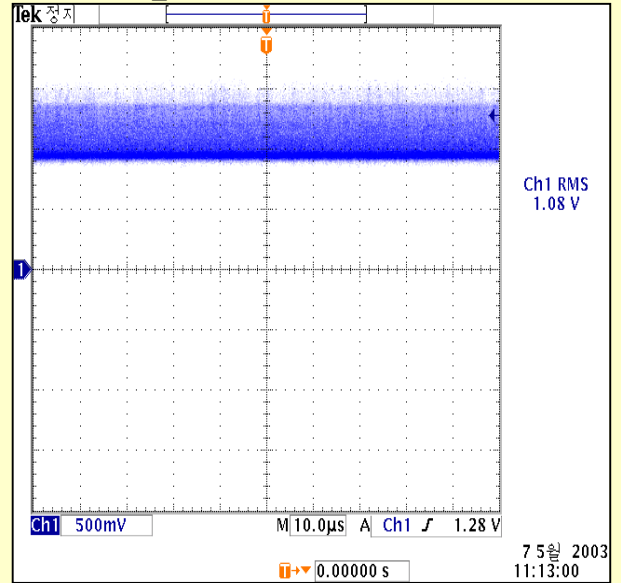
18. LVDS_RXE1+



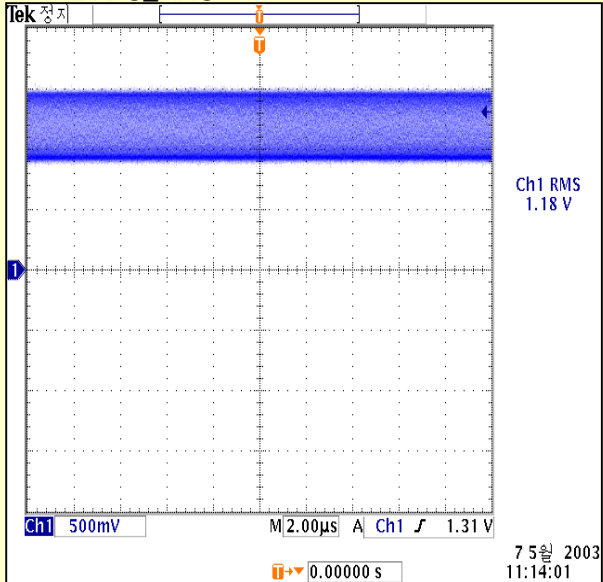
19. LVDS_RXE2-



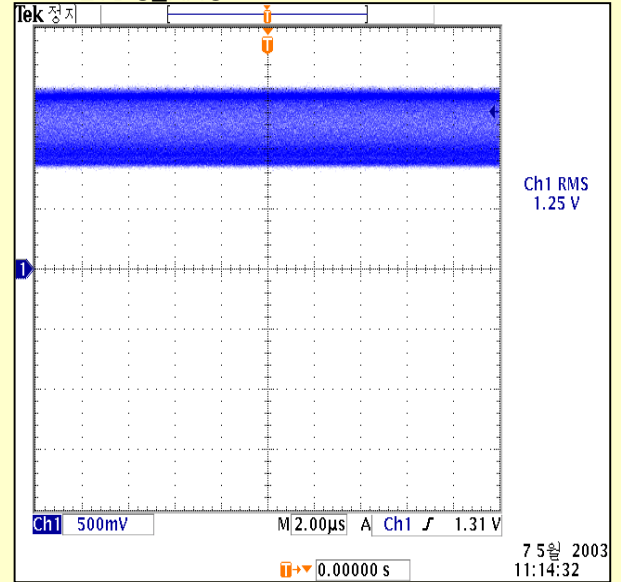
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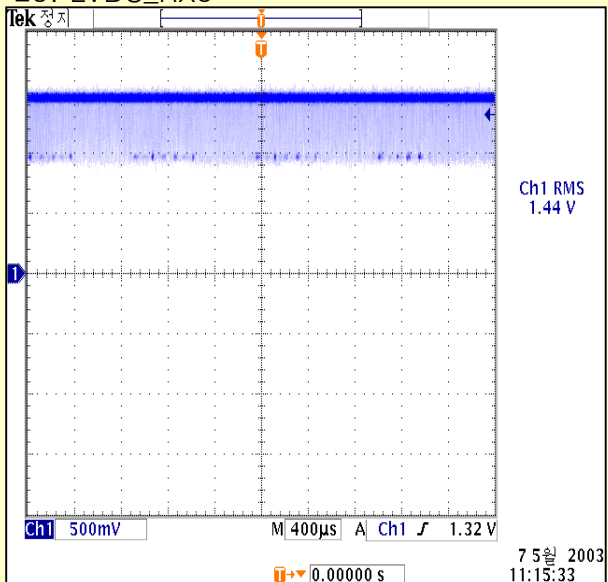
21. LVDS_RXC-



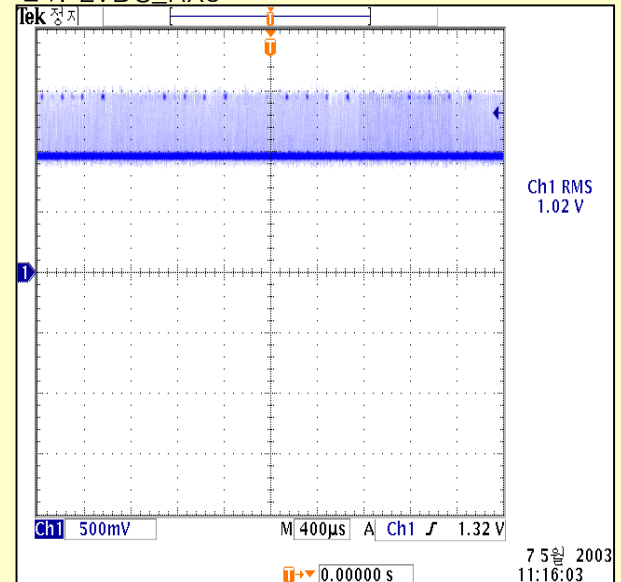
22. LVDS_RXC+



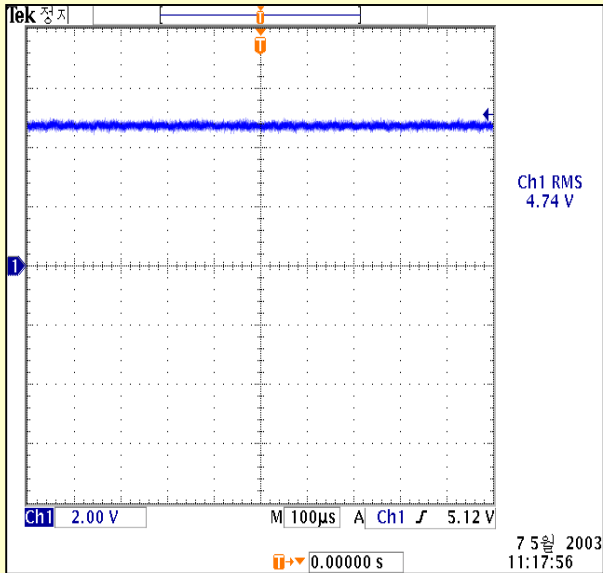
23. LVDS_RX3-



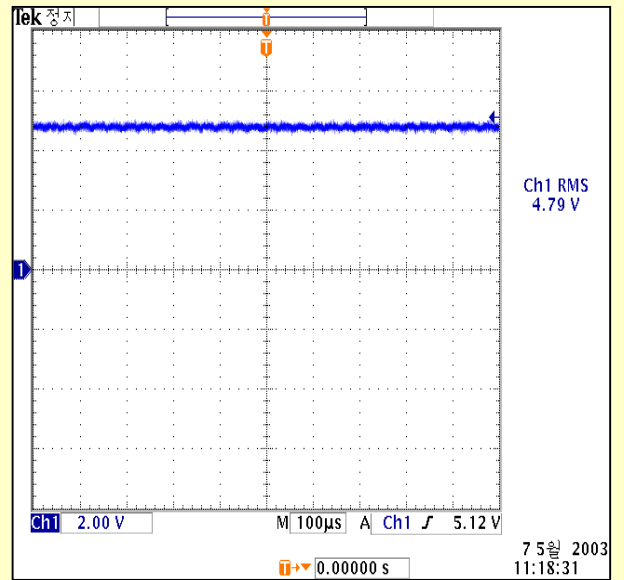
24. LVDS_RX3+



25. On_PANEL



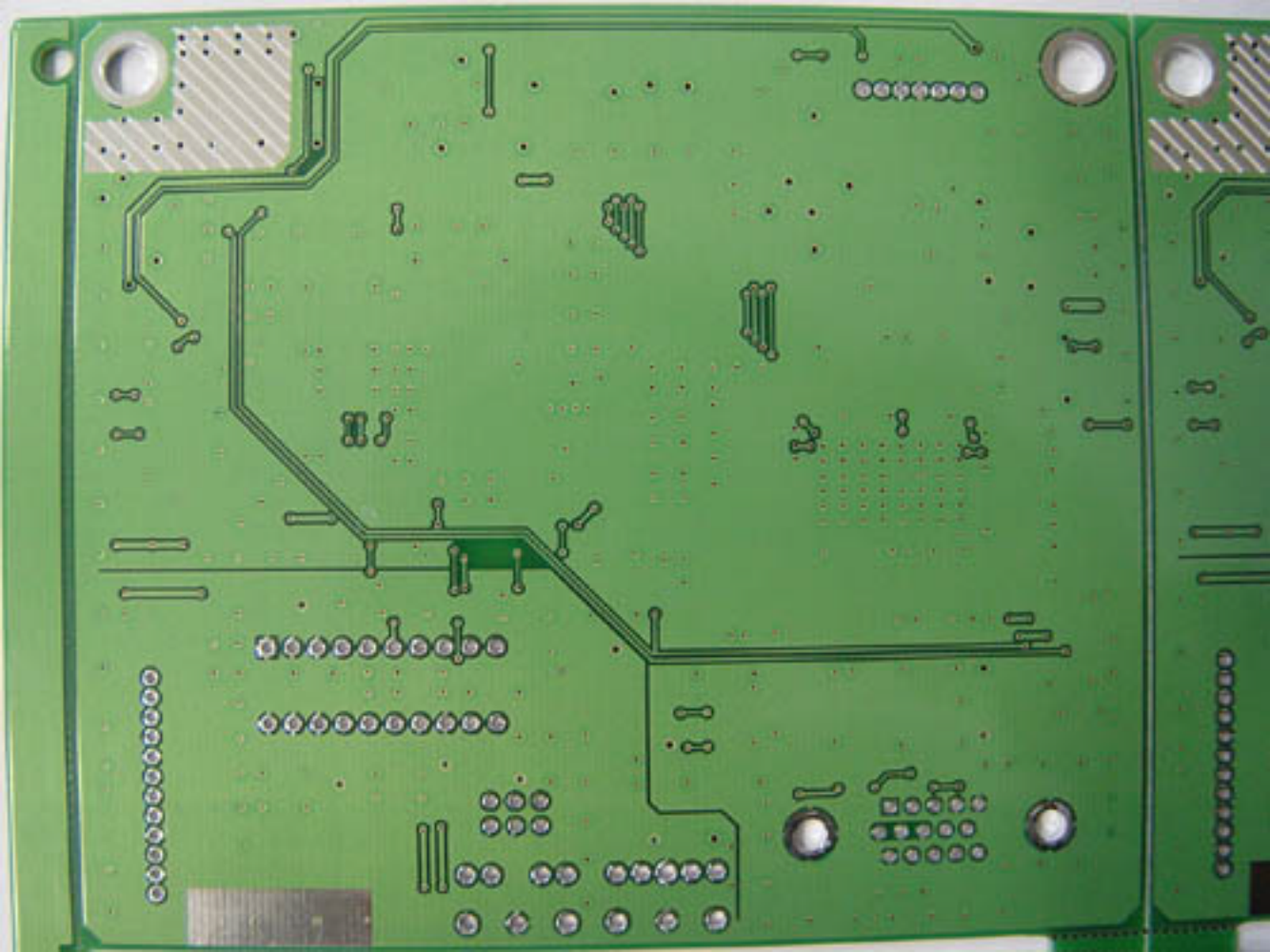
26. MCU – VDD5(7번 PIN)

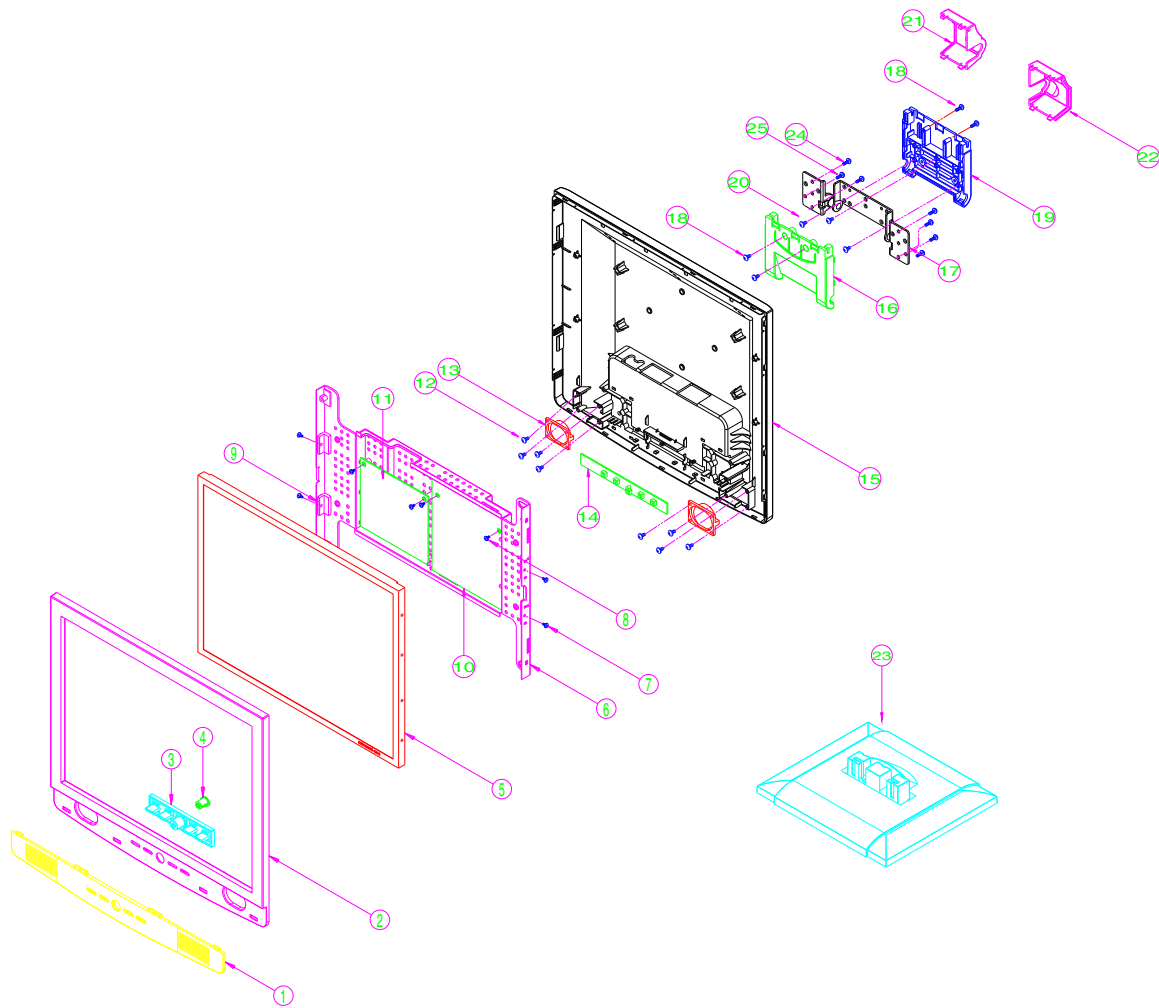


Q3M VDS REV.00
7/9

L50S LVDS
VP REV.00
3041001065

MEMO
SELECT
DOWN
UP
END
L13/E
L13/S
PWR/ON
END
PWR/OFF





25	5001000194	SCREW	SCR-MC,MC4X10	2	
24	5001000208	SCREW	SCR-MC,MC4X12	4	
23	62013190	STAND BASE	ABS 94 HB	1	
22	62013186	HINGE CAP L	ABS 94 HB	1	
21	62013187	HINGE CAP R	ABS 94 HB	1	
20	5004000192	SCREW	SCR-TT,MC3X6	3	
19	62013188	STAND FRONT	ABS 94 HB	1	
18	5004000190	SCREW	SCR-TT,MC3X8	4	
17	6115025100	HINGE ASSY		1	
16	62013189	STAND REAR	ABS 94 HB	1	
15	62013204	COVER REAR	ABS 94 HB	1	
14	3010700826	CONTROL PCB ASSY		1	
13	3550100115	SPEAKER L/R		1	
12	5004000197	SCREW	SCR-TT,MC3X10	8	
11	E4208422911	MAIN PCB ASSY		1	
10	3610200114	PWR-INV. PCB ASSY		1	
9	62230876	PANEL SPACE AU	ABS 94 HB	4	
8	5001000666	SCREW	SCR-MC,BIN+MC3X5	4	
7	5001000579	SCREW	SCR-MC,BIN+MC3X8	4	
6	61012208	MAIN FRAME	EGI T=0.8	1	
5	3330500255	LCD M150XN05 AU		1	AUO
4	62200857	LENS LED	PMMA	1	
3	62152407	KNOB TACT	ABS 94 HB	1	
2	62013202	COVER FRONT	ABS 94 HB	1	
1	62013203	COVER PANEL	ABS 94 HB	1	
NO	PART NO	PART NAME	DESCRIPTION	QT'Y	REMARK

DESIGN BY	PLANNED BY	CHECKED BY	APPROVED BY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN ** (INCHES) TOLERANCES ARE: LINEAR .5 ANGLES .2 HOLE UNLESS NOTED .2	PROJECT NO.	TITLE	REV
J.S.WOO		J.J.LEE	J.S.KIM		SCALE	EXPLODED VIEW	00
103.02.27		103.02.27	103.02.27		DATE	DWG NO.	SHEET 1
IMAGEQUEST				MODEL L50S BRAND	DATE	A2	FILE NAME: EXPLODED VIEW